PB86-133998

Superfund Record of Decision (EPA Region 1)
Picillo Farm, Coventry, Rhode Island
September 1985

(U.S.) Environmental Protection Agency
Washington, DC

30 Sep 85

U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R01-85/012
September 1985

PB86-133998

EPA

Superfund Record of Decision:

Picillo Farm, RI

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R01-85/012		PB86-133998/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION Picillo Farm, RI	September 30, 1985 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Picillo Farm site is located in Coventry, Rhode Island, approximately 20 miles southwest of Providence. Drums containing hazardous wastes and bulk wastes were illegally disposed within an 8-acre area of the Picillo Farm over a period of months in 1977. A series of trenches--the northwest trench, northeast trench, west trench, south trench, and two slit trenches--were used for this activity. In September 1977, an explosion and fire at the site brought the dumping activities to the attention of regulatory agencies. Since September 1977, a number of investigations and remedial activities have been conducted at the site. PCBs, organics, and phenols were identified in onsite soil.

The selected remedial action includes: disposal of approximately 3,500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3,000 cubic yards of primarily phenol contaminated soils onsite in a RCRA/TSCA landfill; and implementation of site closure activities. Total capital cost for the selected remedial alternative is estimated to be $841,600 with O&M costs approximately $12,120 for the first year, $25,648 for years 2-4 and $19,048 for years 5-30 (with the exception of year 16 at $34,048). The recommended remedy will not eliminate the residual ground water at the site. In addition to this remedy, however, EPA will implement a ground water and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment. If additional remedial actions are determined to be necessary, a Record of Decision will be prepared.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Picillo Farm, RI Contaminated Media: soil, gw Key contaminants: PCBs, phenols, VOCs, tetrachloroethylene (TCE), xylene, ethylbenzene		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
		72
	20. SECURITY CLASS (This page)	22. PRICE

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

RECORD OF DECISION

REMEDIAL ALTERNATIVE SELECTION

Site: Picillo Farm, Coventry, Rhode Island

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents describing the analysis of cost-effectiveness of remedial alternatives for the Picillo site:

1. Remedial Investigation/Feasibility Study, Picillo Hazardous Waste Site, Coventry, Rhode Island, August 1983, prepared by Tighe & Bond/SCI in association with Leggette, Brashears & Graham, Inc. and Ecological Analysts, Inc.

2. Endangerment Assessment and Feasibility Study, Picillo Site, Coventry, Rhode Island, March 1985, prepared by GCA Corporation, GCA/Technology Division, Bedford, Massachusetts.

3. Summary of Remedial Alternative Selection.

4. Community Relations Responsiveness Summary.

5. State and EPA staff summaries and recommendations.

DESCRIPTION OF SELECTED REMEDY

- Disposal of approximately 3500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3000 cubic yards of primarily phenol contaminated soils onsite in a RCRA/TSCA landfill.

- Implementation of site closure activities.

DECLARATION

Consistent with the Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 C.F.R. Part 300), I have determined that at the Picillo Farm site disposal of soils contaminated with hazardous substances in an on-site RCRA/TSCA landfill and implementation of the associated site closure activities is the cost-effective remedy for the on-site soil contamination and provides adequate protection of public health, welfare, and the environment.

The source control remedy will require operation and maintenance activities to ensure its continued effectiveness. These operation and maintenance activities will be considered part of the approved action and eligible for Trust Fund monies for a period of one year from the completion of remedial actions.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

EPA has consulted with the State of Rhode Island concerning the selected source control remedy. Like EPA, the State proposes that the phenol contaminated soils be placed in an on-site RCRA landfill. The State does not concur with EPA's decision that the 3500 yd^3 of primarily PCB contaminated soil also be disposed of in an on-site RCRA/TSCA landfill.

The recommended remedy will not eliminate the residual groundwater contamination at the site. EPA will implement a groundwater and surface water monitoring program and will establish risk based standards for the groundwater that are protective of public health, welfare and the environment. Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

Sept. 30, 1985
Date

Michael R. Deland
Regional Administrator

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

Picillo Farm Site
Coventry, Rhode Island

SITE LOCATION AND DESCRIPTION

The Picillo Farm site is located in Coventry, Rhode Island, approximately 20 miles southwest of Providence and 1 mile southwest of the intersection of Route 102 and Perry Hill Road. The site coordinates are approximately 41° 41' 20" longitude and 71° 42' 45" latitude. The USGS map for the site is the Coventry Center, RI Quadrangle which was published in 1955 and photorevised in 1970.

The Town of Coventry, Rhode Island, based on a 1980 census (Rand McNally, 1980), has a total population of approximately 8,000 people. The site is located in a very rural area with approximately 30 to 40 dwellings within a 1 mile radius.

The disposal site consists of approximately 8.0 acres of cleared land which is surrounded by woodlands and wetlands and slopes to the northwest towards the Unnamed Swamp. A locus map of the site is presented in Figure 1. The Picillo Farm site was listed on the first Superfund National Priority List published in September, 1983.

SITE HISTORY

Drums containing hazardous wastes and bulk wastes were illegally disposed within an 8-acre area of the Picillo Farm over a period of months in 1977. A series of trenches -- the northeast trench, northwest trench, west trench, south trench, and two slit trenches, -- were used for this activity. In September 1977, an explosion and fire at the site brought the dumping activties to the attention of regulatory agencies.

Since September 1977, a number of investigations and remedial activities have been conducted at the site. During the Fall of 1979, the Rhode Island Department of Environmental Management (RI DEM) and the Environmental Protection Agency (EPA) contracted with Mitre Corporation of Bedford, Massachusetts, to study and recommend the best methods of cleanup for the site. Mitre conducted a hydrogeological assessment of the groundwater contamination, assessed the extent of wastes buried onsite and developed alternatives for short-term and long term remedial action. Upon receipt of the Mitre report, RI DEM contracted with Jetline

Corporation of Stoughton, Massachusetts to conduct cleanup activities. Excavation of the northeast trench began in September 1980, with the final barrel count reaching 2,314. The barrels were disposed of in an offsite landfill. Soils from the excavation activities, contaminated with PCB's and other organic contaminants, were stockpiled in the southeast corner of the site and designated the "PCB Pile."

In December 1980, EPA notified RI DEM it would pay for excavation costs of the northwest trench with money from the Clean Water Act 311 Fund. However, due to the unavailability of anticipated funds, RI DEM assumed funding for the excavation in March 1981 and contracted with Peabody Clean Industries. In June 1981, Peabody Clean Industries completed excavating the 4,500 barrels and the contaminated soils buried in the northwest trench. Shortly thereafter, EPA funded $250,000 for offsite disposal of the barrels and contaminated soils excavated from this trench.

In November of 1981, Ecology and Environment, Inc. (E&E) under contract to EPA, submitted a hydrogeologic report providing additional information on the Picillo site. The following February, EPA entered into a cooperative agreement with the State for a remedial work effort. In April 1982, under this agreement, the State contracted with O.H. Materials of Findlay, Ohio, for the removal of solid wastes. By May 1982, O.H. Materials's excavation of the west trench, south trench, and two slit trenches had resulted in the removal and offsite disposal of 3,300 barrels. Contaminated soils from this excavation were placed in two stockpiles at the south end and near the center of the site. Because of high concentrations of phenols (e.g. 870 ppm) discovered in the soils, these two piles have been designated the first and second phenol piles. (The second phenol pile has also been referred to as the Phase III pile in the Feasibility Study). This effort completed the removal of buried drums at the site as identified in the previous studies conducted by Mitre Corporation. Exploratory excavations were conducted, to confirm Mitre's findings and no additional drums were discovered.

In September 1982, O.H. Materials began land farming the first phenol waste pile and decreased the phenol concentration from approximately 870 ppm to 60 ppm. Pilot studies conducted on the biodegradation of the PCB contaminated soils, using comercially available microbes, proved to be unsuccessful. In February 1983, RI DEM contracted the team of Tighe & Bond/SCI, Leggette, Brashears & Graham, Inc. and Ecological Analysts, Inc. through the cooperative agreement with EPA. They were tasked to perform final field investigative studies and to recommend a cost-effective groundwater discharge, treatment, and recharge system to mitigate contaminated groundwater originating at the site.

EPA, with expert assistance from GCA, reviewed the draft Tighe & Bond report and concluded that more work was required to establisn the types, amounts and disposition of wastes which remain at the site. Additionally, EPA concluded that more work was needed to determine the extent of source release and to profile the ground-water/surface water contaminant plume. GCA's findings were submitted in a report to EPA in September 1983. Subsequently, EPA directed GCA to performed an Endangerment Assessment to characterize the type and extent of contaminants found at the Picillo site (both onsite and offsite) and assess their associated hazards. A summary of the report was presented to the public in June, 1984. In July 1984, GCA was tasked by EPA to conduct an engineering feasibility study addressing the threat defined in the Endangerment Assessment. This study was designed to follow recent EPA RI/FS guidance and to respond to EPA policy concerning appropriate responses at hazardous waste sites.

The feasibility study was completed and presented to the public in April 1985. EPA held a public hearing on the RI/FS and closed-out the public comment period on May 15, 1985.

CURRENT SITE STATUS

Onsite Contamination - Present site features are illustrated in Figure 2. At this time the site is ungraded and unvegetated with some areas of the site having undergone erosion. There are three contaminated soil piles within the site boundaries -- the PCB, first phenol and second phenol (Phase III) soil stockpiles. A complete list of hazardous substances identified in the three soil piles is presented in Volume III, Appendix B of the Endangerment Assessment and Feasibility Study. The PCB soil stockpile is approximately 3,500 yd^3 in volume and is located in the Northeast corner of the site. The pile has been extensively sampled on numerous occasions. The most recent sampling, conducted in February 1984, showed PCB concentrations ranging from "not detected" to 180 ppm (Table 1). Levels of contamination were not uniformly distributed such that the pile could be segregated. Volatile organics are also present in the soils at concentrations in the high ppb range (Table 2). The PCB pile is covered with a thin plastic liner to minimize fugative dust and infiltration; this liner, however, has been badly damaged by the weather. Similarily, a synthetic liner underlying the pile is thought to be ruptured as a result of sampling activities.

The first phenol stockpile is approximately 2,000 yd^3 and is located in the north end of the site adjacent to the PCB pile. This stockpile has undergone biological treatment which has reduced phenol concentrations from approximately 870 to 60 ppm. The contaminated soil is uncapped in the land treatment impoundment.

The second phenol (Phase III) pile is a stockpile of contaminated soil excavated from the drum staging area and is uncovered and unlined. The amount of soil present in this phenol pile has been estimated at 1,000 yd^3 and is located approximately in the center of the site. These soils are contaminated with relatively low levels of volatile organics and high levels of phenols. Soil samples analyzed for contaminants indicate the presence of tetrachloroethylene (290 ppb), xylene (7080 ppb) and ethylbenzene (455 ppb). Recent sampling by RI DEM indicates the presence of 3430 ppm of phenol and 15,800 ppm of bis (z-ethylhexyl) phthalate.

Offsite Contamination - Ground and surface water samples collected from 1979 to the present indicate that a considerable quantity of pollutants, mainly volatile organic compounds, have been released into the local groundwater and continue to migrate downgradient from the site. Two plumes of contaminated groundwater associated with the Picillo site, have been identified -- the northwest and southwest plumes. Groundwater in the northwest plume discharges to the Unnamed Swamp which empties into Whitford Pond. The southwest plume discharges to Great Cedar Swamp, which discharges to Great Grass Pond. Table 3 is a summary of organic priority pollutant compounds detected in the groundwater. A complete list of hazardous substances identified in the groundwater is presented in Volume III, Appendix C of the Endangerment Assessment and Feasibility Study.

Risk Assessment - As presented in the Endangerment Assessment and Feasibility Study (Volume III, Appendix B and Appendix C), a substantial concentration of hazardous substances remain at or near the area where they were originally located and due to inadequate barriers are continuing to migrate offsite via groundwater contamination. There are four environmental media through which people can potentially come into contact with the aforementioned remaining hazardous wastes at the Picillo site; soils, groundwater, surface water and air.

The major exposure route of concern for people and animals residing near the Picillo site is direct contact with contaminated soils or wastes. Although there is presently a 24-hour guard stationed at the site, this level of security cannot be cost-effectively maintained. Since there are low-level PCB's as well as phenols and volatile organics present in the stockpiles direct contact is an important possible route of exposure, especially for children and animals. Should repeated contact with the PCB pile occur, there is the potential for skin adsorption of PCBs and an increased carcinogenic risk to receptors. Phenols are skin irritants and prolonged and repeated exposure to these soils may result in irritation and cracking of skin. Ingestion of contaminated soils is unlikely because the population that would realistically

have access to the site would consist of teenagers and young adults; hikers, bike riders, etc., who are not likely to ingest soil. However, in the unlikely event that ingestion should occur, concentrations of PCBs and phenols are well above allowable concentrations based on EPA Water Quality Criteria (45 Fr 79318-79379, November 28, 1980).

In addition to the risks associated with direct contact or ingestion of contaminated soils, protecting groundwater as a future water supply is of concern; even though groundwater originating at the site is not presently being used as a drinking water supply. Leachate containing organic chemical contaminants from the three soil stockpiles is expected to be a continued source of groundwater contamination at the site. Table 5 presents data for contaminants present in soils and leachate at the Picillo site. Contaminants present in the ground water at the Picillo site are presented in Table 2. Concentrations of many of the contaminants in the groundwater are above Ambient Water Quality Criteria corresponding to an increased cancer risk to humans of one in one million (45 FR 79318-79379, November 28, 1980).

There is no present risk associated with the ingestion of surface water impacted by contaminants originating at the Picillo site since surface waters in the area are not currently used as potable water supplies. Surface waters in the area that could potentially be used as a water supply include Whitford Pond and Great Grass Pond. Contaminants present at the inlet to Whitford Pond are extremely low (Table 6) and are not expected to pose a risk to its potential use as a water supply considering dilution effects in the Pond. No contamination has been detected in Great Grass Pond or the outlet to Whitford Pond. As has occured in the past, it is expected that most of the contaminated groundwater will discharge to the swamps which act as an effective hydrological barrier minimizing contaminant migration into Whitford or Great Grass Ponds. Similarily, no risk exists from the possibility that people may come into contact with the waters of Whitford Pond or Great Grass Pond through swimming, boating, fishing (and fish consumption), or other water recreation.

Also, because the maximum concentration of chemicals recorded in the Ponds are extremely low (or not detected) and have low bioconcentration factors, fish are not expected to become contaminated to levels that would pose a risk from ingestion. Thus ingestion of fish from the Pond is not an exposure route of concern (Table 7).

Besides Whitford Pond and Great Grass Pond, the other surface waters in the area include the Unnamed Swamp and Great Cedar Swamp. The potential of harm to nearby residents who come into contact with soils, sediments or water in the swamps must be weighed against the probability of people gaining access to these areas. Aerial photographs of the site show dense vegetation;

investigation teams have also reported difficulty accessing some areas of the swamps. In the unlikely event a child, adult, or dog were to fall into the swamp, exposure would be of short-duration to relatively low levels of chemicals, in most cases lower than 1ppm. Additionally, a person would be expected to bathe as soon as possible after falling into the Swamp. The risk assessment concludes that contact exposure to the low levels of contaminants in the Swamp for short periods of time is not suspected to present health risks. As such, the risk to direct contact exposure with the Swamp is not expected to pose a health threat.

Plant and animal life in the marshes and ponds are at risk of exposure to contaminants leaving the Picillo site via groundwater. Because of low concentration of contaminants in the ponds, however, the effects on aquatic life in the ponds is expected to be minimal. The Unnamed and Great Cedar Swamp habitats have both received contamination from the site and will continue to do so as contaminated groundwater from the site discharges to both swamps. During the highest releases to the swamps, some acute or chronic toxicity to swamp organisms may have occurred (Table 3). As concentrations in the swamp continue to decrease, the impact to the swamp is expected to decrease; the availability of a large amount of similar habitat in the region should allow speedy recolonization and recovery.

People living near the site may also be exposed to contaminants in the air since volatilization of chemicals is expected to occur at a soil:air or water:air interface. Distinct chemical odors are present at the Picillo site and in the Unnamed Swamp. Nearby neighbors have voiced complaints concerning these odors during past clean up activities. However, there is little potential for continued volatilization of chemicals from the waste disposal soils since there is only a limited amount of exposed volatile organics at the site. Volatilization from the groundwater discharge areas in the swamps, however, may be a source of airborne organics under certain meteorologic conditions. This exposure route was evaluated in the Endangerment Assessment and determined not to pose a risk to public health. Air modeling for organics detected in the Unnamed Swamp was performed to predict potential downwind concentrations under worst case conditions (Table 4). Predicted levels corresponded with levels detected in 1982 during excavation of barrels. These values, which are at least three orders of magnitude lower than threshold limit valves (TLV) levels set to protect workers, represent worst case conditions which will not be duplicated since contaminant levels in the swamp are continuously decreasing. However, odors may continue to exist thus posing a welfare concern.

ENFORCEMENT

A number of potentially responsible parties (PRPs) have been identified for the Picillo site. Notice letters were originally sent to ten potentially responsible parties (PRPs) on December 15, 1981, and to an additional twenty PRPs on January 20, 1982. Follow-up notice letters were sent to a number of the PRPs on April 12, 1983 and again on April 17, 1985.

Information requests were sent to different generators on a number of occasions. A total of seventy requests were sent between July 22, 1982, and August 5, 1983.

On Friday, May 3, 1985, EPA met with the potentially responsible parties to begin the negotiating process. The EPA informed the PRPs that it was seeking their comments on the RI/FS and established the following negotiating schedule:

°May 15, 1985 - public hearing on the RI/FS and close of the public comment period. The State also informed the EPA and PRPs they would state their position on this date.

°July 15, 1985 - Final day for PRPs to make known their willingness to participate in negotiation. This date begins the 60 day formal negotiating period.

°September 1, 1985 - completion of the 60 day negotiating period.

Comments were received from the generator PRPs at the May 15, 1985, public hearing. The PRPs generally concur with the offsite remedial analysis in the feasibility study and endorse the offsite alternative of No Action.

The PRPs do not concur with the onsite recommended alternative and feel the hypothetical "realistic worst case" used in developing the feasibility study is unrealistic. They consider the only risk to be from repeated direct contact with the "PCB pile" and that no risk exists from the "phenol piles". Therefore, they recommend the PCB pile be enclosed with a secure fence and possibly capped with an earth cover seeded with thickets, thorns and poison ivy. The PRPs contend the recommended alternative of onsite disposal in a RCRA/TSCA landfill, presented in the feasibility study, is excessive based on the risks that exist at the site. EPA's response to comments recieved from the PRPs can be found in the attached Responsiveness Summary.

On May 22, 1985, Rhode Island informed EPA of its desire to conduct joint negotiations. EPA and Rhode Island held a meeting with the PRPs on July 19, 1985. Negotiations are presently continuing with the PRPs and the Agency is hopeful that a settlement can be reached that is acceptable to both EPA and the State.

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Although onsite remedies implemented under CERCLA are exempt from compliance with other environmental laws, one measure used by EPA in determining whether remedial alternatives at Superfund sites adequately meets the CERCLA test of protecting public health, welfare, or the environment is whether the alternative attains the substantive provisions of other applicable federal public health and environmental standards. In assessing the technical adequacy of each proposed landfill design at the Picillo site the agency has used as guidelines the minimum technology requirements outlined under TSCA and RCRA.*/ Onsite disposal of the contaminated soils in a RCRA/TSCA landfill complies with all federal regulations with one exception. That exception is that the bottom of the landfill liner system would not be at least 50 feet from the historical high watertable, as required by 40 CFR 761.75 (b)(3). It is estimated in the feasibility study that the bottom liner would be approximately 10-15 feet above the seasonably high ground water table. Under 40 CFR 761.75 (c)(4) a waiver from a TSCA landfill requirement can be granted provided the landfill will not present any unreasonable risk of injury to health or the environment from PCBs.

In determining whether the onsite remedy meets the CERCLA test of being adequately protective of the public health, welfare, or the environment, the Agency considered the TSCA fifty foot requirement and has determined the onsite landfill would be adequately protective without this requirement being met. A layered impermeable cap would prevent human contact with wastes

---

*/ RCRA standards for hazardous waste disposal facilities are listed under 40 CFR Part 264. The requirements a RCRA facility must meet are outlined in 40 CFR 264 Subpart N and the Hazardous and Solid Waste Amendments of 1984 (Section 3004 (0) Minimum Technological Requirements). Alternative SC-2 (offsite disposal of PCB and phenol soils in a RCRA/TSCA Landfill) and alternatives SC-5 (onsite disposal of PCB and phenol soils in a RCRA/TSCA Landfill) are the only alternatives considered to be consistent with these requirements.

and minimize infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. Any leachate which may be generated will be collected for proper disposal.

State hazardous waste regulations prohibit the landfilling of "extremely hazardous waste" in the State, unless a variance is granted. Soils with PCB levels in excess of 50 ppm are considered extremely hazardous waste by the State, as a result, compliance with State law would require obtaining a variance before the PCB soils could be landfilled onsite. The State position is they are unwilling to grant such a variance. Similarly, the Town of Coventry has indicated that locating a landfill at the Picillo Farm site would be in violation of a local zoning ordinance. As stated, EPA legally is exempt from other laws' requirements, including State and local laws, in selecting onsite remedies at Superfund sites. EPA has determined that despite these State and local laws an onsite landfill would be adequately protective of public health, welfare and the environment.

ALTERNATIVES EVALUATION

Source Control Remedial Alternatives

Onsite sources of contamination have been divided into two operable units:

(1) PCB soils

(2) Phenol soils

As identified in the National Contingency Plan 40 CFR 300.68 (j), the objective of the evaluation of alternatives is to select the "lowest cost alternative that is technologically feasible and reliable and which effectively mitigate and minimizes damage to and provides adequate protection of public health, welfare or the environment."

The following criteria, as set forth in the NCP (40 CFR 300.68 (e)(2)), were assessed in determining appropriate source control remedial action alternatives:

(i) The extent to which substances pose a danger to public health, welfare or the environment.

(ii) The extent to which substances have migrated or are contained by either natural or man-made barriers.

(iii) The experiences and approaches used in similar situations by State and Federal agencies and private parties.

(iv) Environmental effects and welfare concerns.

Source Control Alternatives:

Identification	Description	Present Worth Cost
SC-1	° No Action	0
SC-2	° Disposal of PCB & Phenol Contaminated Soils Offsite in a RCRA/TSCA Landfill	$2,509,200
	° Close Site	
SC-3	° Disposal of PCB Contaminated Soils Offsite in a RCRA/ TSCA Landfill	$1,976,000
	° Disposal of Phenol Contaminated Soils Onsite in a RCRA Landfill	
	° Close Site	
SC-4	° Disposal of PCB Contaminated Soils Offsite in a RCRA/TSCA Landfill	$1,838,700
	° Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill	
	° Close Site	
SC-5	° Disposal of PCB and Phenol Contaminated Soils Onsite in a RCRA/TSCA Landfill	$1,033,000
	° Close Site	
SC-6	° Disposal of PCB Contaminated Soils Onsite in a RCRA/TSCA Landfill	$1,013,300
	° Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill	
	° Close Site	

The No Action alternative does not meet the NCP test for cost-effectiveness in that it would not effectively mitigate or minimize damage to and provide adequate protection of public health, welfare or the environment. None of the site specific objectives necessary to protect public health, welfare or the environment, developed from the risk assessment, would be obtained. Humans and animals could have direct contact with the wastes. Offsite migration of the wastes would be possible via groundwater contamination, erosion of contaminated soils, and fugitive air emissions.

Alternative SC-2 involves disposal of PCB and phenol contaminated soils in an offsite RCRA/TSCA landfill. Since the source would essentially be removed, offsite disposal of the contaminated soils would provide adequate protection of public health, welfare and the environment. However, the availability of RCRA/TSCA (Annex II) landfill capacity is limited and offsite disposal would use this valuable capacity without creating new capacity elsewhere. In addition, the present worth costs for onsite disposal in a RCRA/TSCA landfill, which EPA considers equally protective of public health, welfare, and the environment, are approximately 50% of costs associated with alternatives involving offsite disposal. Because alternative SC-2 does not meet any of the three Section 101(24) criteria for offsite remedies, EPA legally may not use the Fund for such an alternative. EPA, however, has no objection to another party disposing of the PCB pile offsite in a RCRA/TSCA landfill.

Alternative SC-3 involves disposing of the PCB contaminated soils in an offsite RCRA/TSCA landfill and disposal of the phenol contaminated soils in an onsite RCRA/TSCA landfill. EPA considers this alternative adequately protective of public health, welfare or the environment. However, since onsite disposal in a RCRA/TSCA landfill (SC-5) is less costly and equally protective of public health, welfare and the environment, the EPA considers it more cost effective than alternative SC-3.

Alternative SC-4 involves disposal of PCB contaminated soils offsite in a RCRA/TSCA landfill and disposal of phenol contaminated soils onsite in a cap only landfill. The proposed cap design is presented in Figure 4. The cap only landfill for the phenol contaminated soils would not meet Federal guidance used to assess the minimum technology requirements necessary to protect public health and the environment (40 CFR 264). Also the cap only landfill would not adequately mitigate the public health, welfare and environmental threats posed by the site as outlined in the risk assessment. In particular, it would not mitigate the threat of contaminants migrating offsite via groundwater without a bottom liner, leachate collection system and leak detection system. If there were a failure in the cap, organic chemicals contaminants could possibly migrate offsite undetected via leachate generation.

Alternative SC-5, which involves onsite disposal of the PCB and phenol contaminated soils in a RCRA/TSCA landfill, will provide adequate protection of public health, welfare and the environment. Construction of the RCRA/TSCA landfill involves well known construction techniques. The technology employed can be implemented in a reasonable time and will have a long useful life. This alternative meets the minimum technology requirement to protect public health and the environment as outlined under TSCA and RCRA. The agency used these requirements as guidelines in assessing whether the proposed landfill design is adequate to protect public health, welfare and the environment. A schematic of a typical RCRA/TSCA landfill is presented in Figure 3. A layered impermeable cap would prevent human contact with wastes and minimize or eliminate infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. Any leachate which may be generated will be collected for proper disposal. Without the bottom liner, leachate collection system and leak detection system, if there were a failure in the cap, organic chemical contaminants could possibly migrate offsite undetected via leachate generation.

Alternative SC-6 involves onsite disposal of the PCB contaminated soils in a RCRA/TSCA landfill and onsite disposal of the phenol contaminated soils in a cap only landfill. As with alternative SC-4, a cap only landfill for the phenol contaminated soils does not adequately protect public health, welfare and the environment from offsite migration of contaminants via groundwater. Additionally, this alternative already involves the construction of a RCRA/TSCA landfill onsite for the PCB contaminated soils which is more protective of public health, welfare and the environment. The costs of placing the phenol contaminated soils in this landfill are approximately the same as building a separate cap-only phenol landfill since significant additional excavation would be necessary to prepare the phenol contaminated soils for a cap.

All of the alternatives being considered (excluding no action) would be followed by appropriate site closure and postclosure activities. Closure and post closure activities will include filling, grading, fencing, revegetating and mowing the site. Alternatives involving an onsite landfill would also require installing a runon/runoff control system, implementing a ground water monitoring program, and performing any necessary repairs to the landfill that may be required. Additionally, all appropriate mitigation measures to minimize airbourne contaminants during construction will be implemented.

A number of alternative technologies were considered in the development of the remedial alternatives. These alternatives underwent an initial screening process based on 40 CFR 300.68(h) of the NCP. Alternatives were eliminated if they would not mitigate identified public health or environmental threats, were technically infeasible or would not provide substantially greater public health or environmental benefits compared to less costly alternatives.

Technologies that were considered and excluded from further consideration include solidification of the PCB and phenol waste piles, permeable and impermeable capping of the PCB waste pile, permeable capping of the phenol waste pile, biological treatment of the phenol waste pile, onsite incineration of the PCB and phenol waste piles and offsite incineration of the PCB and phenol waste piles.

Solidification of the waste piles was eliminated for the following reasons: (1) it would not provide no substantially greater public health or environmental benefits compared to less expensive alternatives, (2) the questionable effectiveness of the technology for organic compounds, (3) the 400 percent increase in waste volume and resultant onsite disposal needs, (4) the concern that the solidified mass will degrade and not provide long-term environmental and public health protection.

Both permeable and impermeable capping of the PCB contaminated soils and permeable capping of the phenol contaminated soils were eliminated because they would not effectively mitigate identified public health and the environmental threats determined from the risk assessment. Without a bottom liner leak detection and leachate collection system, contaminants could possibly migrate offsite undetected via leachate generation. These alternatives would not meet minimum technology requirements under RCRA (40 CFR 264 Subpart N and the Hazardous and Solid Waste Amendments of 1984), which were considered in assessing the technical adequacy of the landfill design.

Biological treatment of the phenol contaminated soils was eliminated based on lack of effectiveness. Although biodegradation significantly decreased the concentration of phenol contamination (870 to 60 ppm) in the 2000 yd^3 phenol pile, based on the risk assessment it was not effective in rendering the pile non hazardous. Therefore, this alternative is not considered adequately protective under CERCLA.

Initially (July 1984), both onsite and offsite incineration were eliminated for the PCB and phenol soils due to the high cost and environmental problems associated with mobile incineration of the PCB soils. Due to public comments, State comments and technology developments EPA reevaluated incineration as a remedial alternative for the PCB contaminated soils.

The estimated cost associated with offsite incineration of the PCB contaminated soils and landfilling of the remaining phenol contaminated soils are $8,689,000 (plus an undetermined cost of packaging the soils in 55 gallon drums). EPA has eliminated offsite incineration since it would not provide substantially greater public health or environmental benefits compared to less costly alternatives, particularly considering the relatively low levels of PCBs that are present.

Technology advances since EPA originally considered onsite incineration of the PCB contaminated soils have made this alternative somewhat more attractive than when it was initially eliminated. The EPA has recently completed a test burn for dioxin contaminated soils and achieved six nines efficiency (i.e. 99.9999%). It is doubtful, however, the unit will be available for the Picillo site in the foreseeable future because of prior commitments at other sites. A commercial mobile incinerator has also been located that has successfully incinerated contaminated soils. The operators, however, do not presently hold a TSCA permit, although a test burn for dioxin and PCB contaminated soils is scheduled for the summer of 1985. Although a TSCA permit isn't required to incinerate at a Superfund site, the Agency would use the TSCA requirements as guidance in assuring the incinerator is adequately protective of public health, welfare and the environment. It is known that the incomplete incineration of PCBs can result in such toxic pollutants as dioxin, however, the mobile hazardous waste incineration units are designed to minimize hazardous emissions. The incinerators being considered provide long dwell times and high temperatures. In addition, the units are equipped with extensive pollution control equipment and emission monitoring equipment. Nonetheless, an actual test burn of PCB contaminated soil is necessary to demonstrate that hazardous emissions are not being generated.

There is a great deal of variance in the projected costs for onsite incineration. EPA cost estimates for incineration of just the PCB contaminated soils, onsite landfilling of the phenol soils, and site closure are $6,585,000. These costs are based on present operating experience of PCB soil incineration allowing for a minimal amount of down time (20%). A more conservative cost estimate based on 50% down time result in an estimate of $9,615,000. The only lower cost estimate EPA obtained was from a commercial mobile incinerator, which estimated the costs to be $3,000,000 for the same scenario. However, these costs were not based on actual experience with burning PCB contaminated soils and did not specifically consider down time, therefore, they are not reliable. The commercial incinerator has not completed a test burn for PCB contaminated soils and were basing these estimates on non PCB contaminated soils. The additional cost associated with sustaining a higher burn temperature, as well as the additional fuel required to sustain incineration at all with low level contaminated soils, could result in a significant increase in these costs. As with offsite incineration, EPA has eliminated onsite incineration since it would provide no substantially greater public health, welfare, or the environmental benefits compared to less costly alternatives, particularly considering the relatively low levels of PCBs that are present.

Offsite Response Alternatives Evaluation

The following criteria, as set forth in the NCP (40 CFR 300.68(e)(3)), were assessed in evaluating offsite remedial action alternatives:

(i) Contribution of the contamination to air, land, or water pollution problem.

(ii) The extent to which the substances have migrated or are expected to migrate from the area of their original location and whether continued migration may pose a danger to public health, welfare or environment.

(iii) The extent to which natural or man-made barriers currently contain the hazardous substances and the adequacy of the barriers.

(iv) The extent to which substances pose a danger to public health, welfare, or the environment.

(v) Environmental effects and approaches used in similar situations by State and Federal agencies and private parties.

(vi) Environmental effects and welfare concerns.

Offsite Response Alternatives:

Identification	Description	Present Worth Cost
OS-1	° No Action	0
OS-2	° Limited Action	$ 90,000
OS-3	° Groundwater Recovery, Treatment, and Discharge	$3,600,000 4,000,000

As the title implies, the No Action alternative, OS-1 precludes any remedial activity. This alternative would provide no active cleanup of ground and surface water.

Similar to No Action, Limited Action proposes no active cleanup of ground and surface water. It differs from No Action in that additional groundwater wells would be installed and a ground and surface water monitoring program implemented to establish risk based standards for groundwater that are protective of public health, welfare and the environment. This approach is based on groundwater protection requirements under RCRA necessary to

protect public health and the environment (40 CFR 264, Subpart F and the 1984 RCRA Amendments). EPA would use these requirements as guidelines in determining what contaminant levels in the groundwater must be attained to be adequately protective under CERCLA. A final determination on groundwater contamination would be made after these risk based standards are established and assessed.

The third alternative OS-3 involves recovery of ground water, treatment, and subsequent discharge to the Unnamed Swamp. This alternative would be technically difficult to implement since locating the recovery wells or recovery drains in an area of high contamination and high yield would involve a significant amount of exploratory work. This alternative may also have an adverse effect on the wetlands by lowering the levels in the Unnamed Swamp or Great Grass Swamp during groundwater recovery. Frequent monitoring and upgrading of the recovery system may also be required. The ground water treatment system would involve air stripping, vapor recovery, pH adjustment, sand filtration, carbon adsorption, and vacuum filtration of sludges. This treatment system is relatively complex and will require a high level of operation and maintenance, however, it will be highly effective at removing contaminants in the effluent such as acetone, methylene chloride and methyl ethyl ketone (MEK).

A determination regarding the need of implementing this alternative to protect the public health, welfare or environment cannot be made until risk based standards for groundwater are established.

RECOMMENDED ALTERNATIVE

Section 300.68(j) of the National Contingency Plan (NCP)[47 FR 31180, July 16, 1982] states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e. the lowest cost alternative that is technically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment).

EPA has determined the cost effective source control alternative to be SC-5 which involves landfilling the PCB and phenol contaminated soils onsite in a RCRA/TSCA impoundment. The recommended source control alternative also involves site closure and post closure activities including filling, grading, and revegetating the site, installing a runon/runoff control system, ground water monitoring, mowing, fence installation and any future repairs that may be required. As noted above, this remedy complies with all other environmental laws except the TSCA 50 foot rule, the State's rule against landfilling PCBs within the State (which is

based on the TSCA rule), and the local ordinance prohibiting landfills. EPA has considered the fact that the proposed remedy does not comply with these existing requirements but has determined that, nevertheless, it is adequately protective of public health, welfare and the environment.

The recommended remedy will not eliminate the residual groundwater contamination at the site. In addition to this remedy, however, EPA will implement a groundwater and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment (i.e. limited action). Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future actions.

COMMUNITY RELATIONS

The affected community has a long history of interest and involvement in this site which began shortly after the site was discovered in 1977.

A local citizens group SAVE OUR WATER (SOW) has been actively involved since removal activities began in 1980. Until recently, public opinion of EPA and Rhode Island DEM has been poor with citizen groups charging the two agencies with "dragging their feet by studying the site to death" and concern over the lack of visable action to cleanup the site. Recently, EPA and RI DEM have made extensive attemps to involve the public and this effort has been widely applauded by the public and has regained some community confidence.

Community concerns are focused in two areas:

(1) Concern that that contaminated soils will be left on-site. The local citizens feel strongly that all the contaminated soil be disposed offsite.

(2) Concern that contaminated groundwater could ultimately affect the Quidnick Reservoir. Contamination of Quidnick Reservoir is not seen as a possibility even in the absence of remedial action. The citizens still favor the pump and treat offsite (OS-3) remedial alternative.

EFFECT OF SOURCE CONTROL ALTERNATIVES ON WETLANDS

The Picillo Farm disposal site consists of approximately 8.0 acres of cleared land near the top of a glacial deposit. Although the site is not located in wetlands the surrounding lowlands are comprised of wetlands. Assessment of the hydrogeologic data available for the site indicates that contaminated ground water

from the site is discharging into the Unnamed Swamp and Great Cedar Swamp. Present and future impacts on surface water and ground water in the swamp are expected to be less than those measured between February 1979 and July 1981 which resulted from bulk dumping practices. Table 8 provides a comparison of the levels of contaminants found in the swamp to available acute and chronic toxicity data.

The Endangerment Assessment for the Picillo site contains a review of relevent site and chemical characteristics that could pose risks to public health, welfare, or the environment, and an evaluation of those risks. Remedial response objectives were developed from this assessment and used to identify source control remedial alternatives. For the purpose of this discussion the pertinent source control remedial response objectives used in selecting the source control alternatives are:

(1) Remedial actions should preclude the infiltration of soil contaminats into the underlying groundwater.

(2) A groundwater monitoring program will be implemented which is in conformance with the technical requirements of RCRA Part F-- Ground Water Protection.

(3) Pursuant to RCRA closure requirements, which were used as guidelines, a hazardous waste landfill facility shall be closed in a manner that "[m]inimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere."

Implementation of the source control alternatives would not take place in or adversely affect a floodplain or wetland. The source control alternative is designed to preclude the offsite migration of contaminants to the wetlands. Closure activities will in part include grading and revegetating the site. As a result, the source control alternative would have the consequence of not impacting the wetlands at all, but rather preventing offsite migration of contaminants to the Unnamed Swamp.

OPERATION and MAINTENANCE

A number of post closure operation and maintenance (O&M) activities will be required at the site. Operation and maintenance activities associated with the source control remedy (OS-5 onsite disposal in a RCRA/TSCA landfill) include mowing, revegetation, annual inspection,

erosion control, drainage maintenance, sample collection and analysis (for groundwater monitoring program), fence replacement and any other necessary repairs. Projected O&M costs are estimated from the FS as follows:

Year 1: $12,120/year

Year 2-4: $25,648/year

Year 5-30: $19,048/year ($34,048 for year 16)

Well replacement after 15 years will result in an additional cost of $15,000 during year 16 resulting in an O&M cost of $34,048 for that year. The total present worth for source control operation and maintenance is estimated at $191,400.

Operation and Maintenance activities will be considered part of the approved action and eligible for Trust Fund Monies for a period of one year from the completion of remedial actions.

The State has made a conditional commitment to provide the operation and maintenance costs associated with the disposal of the phenol contaminated soils in a onsite RCRA/TSCA landfill after the first year of implementation. The State's funding mechanism is the Hazardous Waste Response Bond Account, and the Rhode Island Department of Environmental Management is the State Agency responsible for O & M.

FUTURE ACTIONS

The recommended remedy will not eliminate the residual groundwater at the site. In addition to this remedy, however, EPA will implement a groundwater and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment.

To develop these risk based standards the Agency will use an approach based on the groundwater monitoring and corrective action standard (40 CFR 264, Subpart F and the 1984 RCRA Amendments). The RCRA groundwater regulations require the setting of groundwater protection standards, which are levels that are protective of human health and the environment. Corrective action is required if these levels are exceeded. The groundwater protection standards of RCRA require that certain contamination levels be attained: background levels, maximum contaminant levels (MCL's) or alternate concentration limits (ACL's). ACL's are site specific levels that are demonstrated to be protective of human health and the environment. Using this approach, the Agency will establish risk based standards for the groundwater that are protective of public health, welfare and the environment.

Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

Community Relations Responsiveness Summary
Picillo Farm Site
Coventry, Rhode Island

Introduction

This responsiveness summary for the Picillo Farm Site documents concerns raised during the Superfund remedial planning process and the public comment period on the feasibility study, and how EPA considered and responded to these concerns.

Activities Conducted Prior to the Feasibility Study Comment Period

Before 1981, most community relations activities were conducted informally by the State. Official interaction with the community was conducted through the Town Council and later also with Save Our Water (SOW), formed by area residents in 1980. SOW became the primary group representing concerned citizens and became an important point of contact between the community and involved agencies.

A Community Relations Plan (CRP) was drafted in December 1981 by ICF, Inc., for use during removal actions at the site. This CRP was revised by the State in June 1982 to accompany the cooperative agreement, signed in February 1982. Written and verbal updates on site activities were issued periodically by the State to concerned citizens.

In April 1984, EPA and the State conducted interviews with town officials and several concerned citizens. These interviews were followed by a public meeting, held on May 7, 1984, which was organized by SOW. Approximately 30 citizens attended this meeting. A second public meeting was held by EPA in June 1984 to present the results of the remedial investigation and the initial endangerment assessment. Information obtained from these interviews and public meetings was used by EPA and the State to update the CRP in October 1984. An expanded mailing list of interested parties was developed during the CRP revision.

Concerns Raised Prior to the Feasibility Study Comment Period

The predominant concern voiced by members of the community was over potential health effects to area residents as a result of air emissions, groundwater contamination and general offsite migration of contaminants. Citizens expressed fear that drinking water supplies could become contaminated and that odors emitted from the site were toxic.

A major concern was over the lengthy process of remediating site conditions and a perception from citizens that EPA and the State failed to communicate to the community adequately during remedial activities. The status and fate of soils contaminated with PCBs was of great concern to residents.

Another major concern cited by area residents regarded the future ownership of the site property. Many citizens expressed concern that the Picillo family would retain ownership of the land and use it in the future. Citizens requested that the government -- local, State, or Federal -- take control of the land.

Additional concerns were voiced about the effects of fractured bedrock on groundwater plume migration and the effects of contamination on the unnamed swamp, private wells, the Quidnick Reservoir, the proposed Big River Reservoir Project and nearby cranberry bogs.

Agency Response to Concerns Raised Prior to the Feasibility Study Comment Period

As a result of concerns raised by the community regarding exposure to air emissions, EPA conducted air modeling to determine potential impacts resulting from exposure. EPA examined potential impacts to groundwater, and the feasibility of groundwater treatment. The remedial investigation was revised to examine effects on nearby cranberry bogs and to determine whether the public was coming in contact with site contaminants or drinking polluted groundwater. The endangerment assessment was also expanded to address other risk factors.

Activities Conducted During the Feasibility Study Comment Period

The final RI/FS was released to the public on April 8, 1985. Copies of the report were available at the Coventry Town Hall Library and at the Rhode Island Department of Environmental Management in Providence. A copy of the report was also sent to SOW.

A public meeting was held on April 23, 1985, at the Western Coventry School in Coventry at 7:00 p.m. for the purpose of explaining the RI/FS. Approximately 20 citizens attended the meeting. An eight page fact sheet summarizing the Feasibility Study was distributed at the meeting.

In response to concerns raised at the meeting, EPA agreed to extend the public comment period from May 1, 1985, to May 15, 1985.

A public hearing was held at the Western Coventry School at 7:00 p.m. on May 15, 1985, to officially receive comments from the community. Approximately 25 citizens attended the hearing. Testimony was provided by 1 town official, 1 State official, 9 citizens, and 1 State Representative.

Concerns Raised During the Feasibility Study Comment Period

A summary of all comments received by EPA during the public comment period is provided in the attached pages, along with the corresponding agency response. Comments were received from the community, the State of Rhode Island and the potentially responsible parties (PRPs).

Remaining Concerns

EPA will continue to keep the community apprised of site activities, and informed during design and construction of the selected alternative. Whether ownership of the land will be transferred from the present owner will need to be established. Containment of contaminated soils on site should mitigate any future impacts to groundwater. Future land use of the site and adjoining area could also become a community concern.

Additional concerns were voiced about the effects of fractured bedrock on groundwater plume migration and the effects of contamination on the unnamed swamp, private wells, the Quidnick Reservoir, the proposed Big River Reservoir Project and nearby cranberry bogs.

Agency Response to Concerns Raised Prior to the Feasibility Study Comment Period

As a result of concerns raised by the community regarding exposure to air emissions, EPA conducted air modeling to determine potential impacts resulting from exposure. EPA examined potential impacts to groundwater, and the feasibility of groundwater treatment. The remedial investigation was revised to examine effects on nearby cranberry bogs and to determine whether the public was coming in contact with site contaminants or drinking polluted groundwater. The endangerment assessment was also expanded to address other risk factors.

Activities Conducted During the Feasibility Study Comment Period

The final RI/FS was released to the public on April 8, 1985. Copies of the report were available at the Coventry Town Hall Library and at the Rhode Island Department of Environmental Management in Providence. A copy of the report was also sent to SOW.

A public meeting was held on April 23, 1985, at the Western Coventry School in Coventry at 7:00 p.m. for the purpose of explaining the RI/FS. Approximately 20 citizens attended the meeting. An eight page fact sheet summarizing the Feasibility Study was distributed at the meeting.

In response to concerns raised at the meeting, EPA agreed to extend the public comment period from May 1, 1985, to May 15, 1985.

A public hearing was held at the Western Coventry School at 7:00 p.m. on May 15, 1985, to officially receive comments from the community. Approximately 25 citizens attended the hearing. Testimony was provided by 1 town official, 1 State official, 9 citizens, and 1 State Representative.

Concerns Raised During the Feasibility Study Comment Period

A summary of all comments received by EPA during the public comment period is provided in the attached pages, along with the corresponding agency response. Comments were received from the community, the State of Rhode Island and the potentially responsible parties (PRPs).

Remaining Concerns

EPA will continue to keep the community apprised of site activities, and informed during design and construction of the selected alternative. Whether ownership of the land will be transferred from the present owner will need to be established. Containment of contaminated soils on site should mitigate any future impacts to groundwater. Future land use of the site and adjoining area could also become a community concern.

COMMUNITY CONCERN	RESPONSE
1. Onsite Disposal	
Generally oppose disposing of PCB and phenol contaminated soils on site. No long-term security; breakdown of landfill could result in contamination of drinking water. It is the Coventry Town Council's policy that all hazardous waste should be removed from the site and stored at a TSCA approved landfill. As long as offsite storage is available, it should be used. Leaving waste onsite will present risk of human contact. Could also affect the proposed Big River Reservoir Project and the Moosup River watershed. Storage of contaminants onsite is unacceptable and illegal. Fractured bedrock at site makes it inappropriate for onsite disposal; site is also close to an earthquake zone; leakage could contaminate groundwater. Should be cheaper to truck contaminants offsite to an existing landfill than to build a new one in Coventry. Rodents could chew through lining of landfill; presents hazard from onsite disposal. Problem has existed for six or seven years; site should have precedence over sites in Massachusetts for the removal and disposal of PCBs off site. Should make Picillo Farm a model of hazardous waste cleanup by removing all contaminated materials from the site. Job started before should be finished now.	Onsite disposal of the PCB pile is expected to be a safe and reliable remedial action for disposal of the PCB and phenol contaminated soils for the following reasons: o A layered impermeable cap will prevent human contact with wastes and minimize or eliminate infiltration into the landfill. o An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. o Site closure activities including providing runon/runoff controls, regrading and revegetating the site, and limiting access with a fence will reduce erosion and assure the long term integrity of the landfill. o A long term groundwater monitoring program will be implemented to monitor groundwater quality.

COMMUNITY CONCERN	RESPONSE
1. Onsite Disposal (continued) Creating a landfill at the Picillo Farm Site is in violation of the Town of Coventry Zoning Ordinance. Creating a landfill for the disposal of PCBs on site would violate TSCA requirements that groundwater be more than 50 feet from landfill. State regulations prohibit the construction of a PCB landfill at the site. A landfill cannot be legally constructed at this site.	o Any potential damage to landfill liners by burrowing animals or other causes can be prevented by routine inspection and maintenance of the landfill. The site poses no threat to the proposed Big River Reservoir since the two areas are separated by a major surface water divide. The site also poses no threat to the Moosup River Watershed since the site is far removed from the Moosup River. In addition, a RCRA/TSCA landfill would not be adversely impacted by the presence of fractured bedrock beneath the site. Under section 101(24) of CERCLA an offsite alternative is a permissible remedy only if the offsite action would accomplish one or more of the following three objectives: (a) Is more cost-effective than other remedial actions. (b) Will create new capacity to manage hazardous substances in addition to those located at the affected facility. (c) Are necessary to protect public health or welfare or the environment from a present or potential risk which may be created by further exposure to the continued presence of the contaminated materials.

COMMUNITY CONCERN	RESPONSE
1. Onsite Disposal (continued)	Because offsite land disposal does not meet any of these three objectives, EPA has determined the cost effective source control alternative to be onsite land disposal of the PCB and phenol contaminated soils. Onsite disposal in a RCRA/TSCA landfill and offsite disposal in a RCRA/TSCA landfill are considered equally protective of public health, welfare, and the environment. However, costs for onsite disposal of PCB contaminated soils in an onsite RCRA/TSCA landfill are approximately 58 percent less than offsite disposal in a permitted RCRA/TSCA landfill. The Agency is aware that the proposed landfill does not meet the 50 foot hydrologic condition listed under 40 CFR 761.75 of TSCA and would be in violation of state and local laws. Legally, EPA is exempt from other laws' requirements in selecting an onsite remedy under CERCLA (i.e., Superfund). Instead, the Agency legally is required to determine whether the onsite remedy meets the CERCLA test of being adequately protective of the public health, welfare or the environment. The EPA in making its determination, considered the TSCA regulations as well as other Federal, State and local laws. With the exception of the hydraulic condition, the proposed landfill design exceeds the PCB landfill

COMMUNITY CONCERN	RESPONSE
1. Onsite Disposal (continued)	requirements listed under TSCA. The Agency has determined that onsite land disposal is the cost effective remedy and meets the CERCLA test of being adequately protective of public health, welfare, and the environment. A more in depth summary of the rationale for the chosen remedial alternative, as well as why other alternatives were not chosen, can be found in the "Risk Assessment," "Alternatives Evaluation" and "Recommended Alternatives" section of the ROD.

COMMUNITY CONCERN	RESPONSE
2. Treatment of Contaminated Groundwater	
Implementation of OS-3, Groundwater Recovery, Treatment, and Discharge, would hasten groundwater cleanup. Groundwater should be treated and cleaned.	Although the proposed recovery and treatment alternative may reduce the amount of contaminated groundwater that discharges to the Unnamed Swamp and bedrock spring, implementation of this alternative is not expected to significantly hasten groundwater cleanup. As stated on p. 8-3 of Volume 2 of the RI/FS, contaminant concentrations are ultimately controlled by source persistence. Due to the potentially widespread distribution of contaminants in the unsaturated zone and the site location near a groundwater divide, residual source removal was considered to be technically and economically infeasible. Under natural conditions of precipitation, flushing, dispersion and decay, plume concentrations will continue to decline as the original mass of contaminants at the source is depleted. A determination will be made on whether corrective measures are necessary for the groundwater once groundwater standards that are protective of public health, welfare, and the environment are established for the site.

COMMUNITY CONCERN	RESPONSE
3. Need for Government Entities to Take Control or Ownership of Land Ownership of, or responsibility for the site should be taken by the State or the Federal government. EPA should buy surrounding properties. If Mr. Picillo regains control of the land, EPA and State will have no control over land use, or could be restricted from having access to the site. Government should buy the property. Town should buy the property.	As a policy, EPA does not take ownership of Superfund sites, but funds cleanup activities. EPA does not expect an access problem to develop. However, the Agency acknowledges the community concerns regarding ownership. The final offsite remedy may require institutional controls over groundwater use. EPA is considering the need for institutional controls, including providing funds to have an acceptable party assume ownership of the site. If additional remedial actions are determined to be necessary, including institutional controls, a Record of Decision will be prepared for approval of future remedial actions.

COMMUNITY CONCERN	RESPONSE
4. Failure of Agencies to Meet Prior Commitments	
Citizens expressed the opinion that EPA had informed the Town of Coventry that all hazardous materials at the Picillo Farm would be removed. Some members of the community expressed frustration that the Agency was not upholding this perceived commitment.	The selected remedy outlined in the Record of Decision, constitutes a complete source cleanup within the regulatory guidelines under CERCLA and the NCP. EPA has stated that the site will be completely cleaned up pursuant to CERCLA and the NCP and is still very much committed to this goal.

COMMUNITY CONCERN	RESPONSE
5. Extension of Comment Period	
Citing extensive delays tolerated by members of the community, citizens expressed concern that EPA failed to provide adequate time to review the Feasibility Study during the public comment period.	It is EPA policy to allow for a 21 day public comment period on the Feasibility Study. Due to public concern at the April 23, 1985 public meeting, the public comment period was extended one week and the date for the public hearing was moved from May 1, 1985, to May 15, 1985.

COMMUNITY CONCERN	RESPONSE
6. Groundwater Monitoring	
Sink wells in 360° circle around site in 1 mile radius and test with most recent equipment for 50 years.	The alternate groundwater monitoring program proposed in this comment is not appropriate for the hydrogeologic setting at the Picillo site. Wells positioned in a one-mile radius from the site would all be situated in different subbasins from the one in which the site is located. Ideally, monitoring wells would be positioned near the disposal area to reflect changes in source release mechanisms. As part of the source control remedy, a long-term groundwater monitoring program will be implemented to monitor the landfill. Under RCRA guidelines, the landfill would be monitored for 30 years. Also, the Agency will evaluate whether groundwater correction measures are needed. In the interim, a groundwater and surface water monitoring program will be implemented and risk based standards protective of groundwater will be established. For either monitoring program, arbitrarily setting a time period for sampling and analysis of 50 years would not be necessary.

COMMUNITY CONCERN	RESPONSE
7. Site Security Rural nature of the area makes site security a concern. EPA cannot assure site security. There is no guarantee of long-term security. No fence is "people proof." Despite risks associated with the swamp, it is not even posted with a warning sign.	The long-term security measures which will be implemented at the site are outlined in the Record of Decision Summary. Long-term security will include fencing the eight acre site. Security fences are typically chain-link fences which have several strands of barbed wire along the top. A fence will be of sufficient height and strength to deter people from climbing over or breaking through the fence. Signs will also be posted along the fence to warn humans of the danger from hazardous waste. Regular inspections will also be conducted by regulatory officials.

COMMUNITY CONCERN	RESPONSE
8. Future Development If other homes are built, their wells could become contaminated. Nine homes have been built on Route 102 and four homes on Logbridge Road; new wells have been drilled for each home. Could this affect the groundwater situation? If more private wells are installed, groundwater flows could change, contaminating other wells. Future development could deplete groundwater and create reverse flow. Real Estate interests are telling clients everything is cleaned up. The area is critical for future Rhode Island water development, including the proposed Big River Reservoir Project. If EPA creates a landfill at the site, could this be used as a regional landfill? Could Mr. Picillo regain control of a landfill operation in the community?	Development of new homes near the Picillo site could alter the groundwater flow regime as described in GCA's RI/FS document (April, 1985). However, groundwater withdrawal rates associated with domestic wells along Logbridge Road are typically low and are not expected to significantly alter existing flow patterns near the site. Development along Route 102 is not expected to pose a risk since this area is hydraulically upgradient and at a greater distance from the site than Logbridge Road. The Agency will also continue to monitor groundwater and surface water to detect any changes in groundwater quality. As described in Comment No. 1, the Big River Watershed will not be impacted by the Picillo site. Regarding the construction of an onsite landfill, CERCLA funds would be used for the disposal of onsite soil contamination only. Therefore, the landfill would only be designed to hold the volume of those contaminated soils. Additionally, as part of the alternative, the landfill would be closed and periodically inspected precluding the disposal of any other wastes within it.

COMMUNITY CONCERN	RESPONSE
9. Health Effects	
No health study has been conducted. Can EPA guarantee the community that they have not, or will not, be affected by contaminants on site? Is there the potential for synergistic effects from chemicals at the site? Psychological effects have taken their toll.	EPA does not conduct health studies. Health studies are conducted by the Center for Disease Control (CDC) in Atlanta, Georgia. CDC has reviewed the Risk Assessment, and associated data, for the Picillo site. Their findings to date have been that a health survey is not warranted at this time. There could be synergistic effects associated with combinations of contaminants present at the Picillo site. However, the source control remedy is designed to preclude exposure to the contaminated soil stockpiles.

STATE COMMENTS	RESPONSE
1. Onsite Disposal State opposes disposal of PCBs onsite because site is located near a swamp, because groundwater is less than 50 feet from the proposed landfill and because the site cannot be secured from public access. As long as offsite storage is available, RIDEM recommends the PCBs be disposed of offsite. The State of Rhode Island has regulations under the Rhode Island Hazardous Waste Management Act which prohibit the landfilling of extremely hazardous waste in Rhode Island due to the fact that groundwater is within 50 feet of any possible site. Under State law, PCB contaminated soils over 50 ppm are considered extremely hazardous waste. The State is not in a position to grant a variance for this position and, therefore, the landfill cannot be legally built. As a result, the offsite remedy is the cost effective alternative; the onsite remedy is not feasible due to state regulations and should not be considered. The State does not feel that landfilling of phenol contaminated soils in an onsite RCRA facility poses a hazard to public health or the environment.	EPA acknowledges this State comment and has considered it in the decision-making process. The Agency rational for choosing onsite disposal in a RCRA/TSCA landfill is outlined in comment #1 of the community concerns. A more in-depth summary of the rationale for the chosen remedial alternative can be found in the "Consistency With Other Environmental Laws," "Alternatives Evaluation," and "Recommended Alternatives" sections of the ROD summary.

STATE COMMENTS	RESPONSE
2. Treatment of Contaminated Groundwater Because the RI/FS states that groundwater contamination has reached a maximum level and will decline, the State accepts that the groundwater does not need to be treated. However, the site should remain on the NPL for at least 15 years until natural cleaning is complete, or until the trend of groundwater contamination decline is evident. Groundwater monitoring should be maintained for 30 years in compliance with RCRA requirements. Alternate concentration limits should be set for samples taken from monitoring wells at the property line; if these limits are exceeded, EPA should determine what mitigative measures should be taken.	EPA acknowledges the State's comment regarding the length of time the site should remain on the NPL. However, determining the number of years the site will remain on the NPL is outside the scope of this ROD. EPA also acknowledges the State's comments regarding groundwater contamination. EPA will implement a groundwater and surface water monitoring program to enable the Agency to establish risk based standards for groundwater (i.e., alternate concentration limits) that are protective of public health, welfare, and the environment. The compliance points for these "risk based" limits, possible groundwater treatment, and the length of the groundwater monitoring period will be determined once these standards are developed. Based on this information, if additional remedial actions are necessary, a Record of Decision will be prepared for approval of the future remedial action.

STATE COMMENTS	RESPONSE
3. <u>Need for Government Entities to Take Control or Ownership of Land</u> The State of Rhode Island does not feel that ownership of the site is needed because the State has access to the land, which is all that is required.	EPA acknowledges State concern over State ownership of the site. As a policy, EPA does not take ownership of Superfund sites, but funds cleanup activities. Controlling groundwater use may require institutional controls, including providing funds to have an acceptable party assume ownership of the site. EPA is considering the need for institutional controls, including providing funds to have an acceptable party assume ownership of the site. If institutional controls are necessary to control groundwater use, a Record of Decision will be prepared for approval of future remedial actions.

STATE COMMENTS	RESPONSE
4. Site Security Post or restrict those areas where contaminated groundwater may be reaching the surface. The rural nature of this area will not allow anybody to prevent public access into this area.	The EPA has considered and generally concurs with the State's comment regarding security measures. Long-term security measures which will be implemented as part of the source control remedy include fencing and posting the site.

PRP COMMENTS	RESPONSE
1. Extension of Public Comment Period Requested and were denied an extension of the comment period to the end of May 1985. Accordingly, PRPs reserve the right to challenge at any later proceeding the RI/FS and its analyses, conclusions, and data base.	It is EPA policy to allow for a 21 day public comment period on the Feasibility Study. Due to public concern at the April 23, 1985 public meeting, the public comment period was extended one week and the date for the public hearing was moved from May 1, 1985, to May 15, 1985.

PRP COMMENTS	RESPONSE
2. Offsite Remedial Alternative	
Generator PRPs consider that the concentrations of contaminants released offsite do not present, nor have ever presented, credible risk to human health, welfare, or the environment. Generator PRPs endorse the selection of OS-1 No Action as the Remedial Alternative.	EPA acknowledges this recommendation and has considered it in the decision-making process. Protecting groundwater as a possible future drinking water supply is of concern. Migration of organic chemical contaminants via leachate from the three contaminated soil stockpiles is exptected to be a continued source of groundwater contamination at the site. A determination will be made on whether corrective measures are needed for the groundwater once groundwater standards that are protective of public health, welfare, and the environment are established for the site.

PRP COMMENTS	RESPONSE
3. Realistic Worst Case Scenario is Flawed The "Realistic Worst Case" is seriously flawed. It is not realistic because the assumed 60 soil contacts is not supported and seems extremely unlikely. The maximum PCB soil concentration used was not determined by a USEPA standard published analytical method and, therefore, is not reliable for establishing the dose. If the maximum PCB concentration determined by standard USEPA methods from March 1984 samples is used together with an assumption of only nine total soil contacts, the worst case scenario results in a one in one million cancer risk which, as stated in the RI/FS, is considered an acceptable level. Even if the hypothetical "Realistic Worst Case" scenario is correct, the only risk results from repeated direct contact with a "hot spot."	A screening procedure utilized by the EPA Region I Laboratory to determine the quantity of PCBs in soil at the Picillo Site was utilized for soil samples collected on February 9, 1984. Of the 92 samples analyzed by the screening procedure, random samples were collected and analyzed by the EPA PCB protocol method for sediment/soil analysis for extractable organic compounds from the Revised Draft of Concensus Organics Protocol - 11/30/83 (Latoille, USEPA, 27 March 1984). The screening method yielded a maximum PCB soil concentration of 180 ug/gm (ppm). When the same sample was analyzed by the protocol method, a level of 123 ug/gm (ppm) was determined. Using the 180 ug/gm value as the conservative maximum concentration is not inappropriate for determining risk. However, even if the protocol value of 123 ug/gm is utilized as the maximum PCB concentration in the Realistic Worst Case Scenario, a risk of 1.1×10^{-5} (instead of 1.5×10^{-5}) is determined. The 1.1 in 100,000 increased cancer risk, exceeds the 10^{-6} risk level by a factor of 11 as opposed to 15. Thus, regardless of whether one assumes 180 ppm or 123 ppm as the maximum PCB contamination, an unacceptable risk is determined to exist. To develop the Realistic Worst Case Scenario for direct contact with the PCB pile, the

PRP COMMENTS	RESPONSE
3. Realistic Worst Case Scenario is Flawed (continued)	population which would most likely come into contact with the pile was assumed. Although the site is guarded, it is possible that area residents, especially teenagers, may access the site from access points other than the controlled gate and climb on the PCB pile, or use it for dirt bike riding or other activities. Observations of trespassers, especially teenagers, has been reportedly observed by community residents in the past. It was assumed the age group who would most realistically use the site for these activities would be a young male between the ages of 10 through 16. Therefore, the exposure period was assumed to be six years. 10 soil contacts per year is reasonable in a Realistic Worst Case Scenario due to the nature of the activities expected at the Picillo site and the age group performing them. A one year exposure period with 9 contacts is not reasonable for a realistic worst case since the realistic worst case should be designed to encompass what could occur for the population specified, i.e., to determine the maximum exposure potential for the population of concern.

PRP COMMENTS	RESPONSE
4. Recommended Alternative	
Oppose use of RCRA/TSCA facility for disposal of contaminated materials onsite. The PCB pile was created from the spoils of the Northeast Trench. Eighty percent of the materials in the Northeast Trench were uncontained at the time of cleanup in 1980. This indicates that the bulk of the PCBs were released to the environment during and prior to 1980 with no ill-effects to health and safety. RIDEM disposed of the heavily contaminated soil and stockpiled only the slightly contaminated soil. The "Phenol Pile" was successfully treated onsite and does not pose a risk. No more than 25 gallons of PCBs remain in the "PCB Pile." This results in an average concentration of much less than 50 ppm. More than 25 gallons of PCBs were released during dumping and during cleanup, yet the naturally occurring conditions onsite prevented any threat to human health, welfare, and the environment. SC-5, Landfill in RCRA/TSCA Facility, is not justified by the risk presented. There is no legal requirement for these materials to be disposed of in an RCRA/TSCA landfill. The PCB pile is not regulated by TSCA because the average PCB concentration is less than 50 ppm. EPA policy (6-PCB-9) allows compositing of samples, so the average is the appropriate measure of PCB concentration. Data also suggests that natural biodegradation of PCBs is occurring. The generator group is willing to test a sample from the PCB pile to determine if biodegradation is taking place.	EPA acknowledges the PRPs comments regarding onsite disposal in a RCRA/TSCA landfill and has considered them in the decision-making process. The Agency rationale for the selected remedy is outlined in the ROD summary. A RCRA/TSCA landfill and the associated impermeable cap, leachate collection system, and leak detection system is necessary to adequately protect the public health, welfare, and the environment. A layered impermeable cap would prevent human contact with wastes and minimize or eliminate infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system wil protect against contaminant migration. Site closure activities include providing runon/runoff controls, regrading and revegetating the site, and limiting access with a fence. These will reduce erosion and assure the long-term integrity of the landfill. Simply covering the PCB pile with "thickets, thorns, or poison ivy" will not adequately protect the public health, welfare, and the environment. This proposed remedy only addressed the threat of direct contact with the PCB contaminated wastes.

PRP COMMENTS	RESPONSE
4. Recommended Alternative (continued) The risk associated with the site could be easily remediated through the elimination of future contact with contaminants. The PCB pile could be covered with earth and seeded with thickets, thorns, or poison ivy to provide an additional degree of security. The primary defect of the RI/FS is the failure to address a security/cover type remedy. The recommended alternative SC-5, RCRA/TSCA Landfill, provides no additional protection from human and animal contact. The only risk to be avoided is a potential health concern arising from repeated direct contact with trespassers; the creation of a RCRA/TSCA landfill is not the appropriate remedy to avoid this risk.	As stated in the RI/FS, there are also risks to public health and the environment through direct contact with the phenol pile. Also, organic chemical contamination in both the PCB and phenol contaminated soil is expected to provide a continued source of contamination to the groundwater, preventing it from being used as a potable water supply. A more in depth explanation of the risks associated with the site is presented in the "Risk Assessment" section of the ROD summary. Even as just a deterent againt direct contact with the PCB contaminated soils, the proposed remedy is severely inadequate. Erosion would quickly reduce the integrity of such a cap and leave the contaminated soils exposed. A properly constructed landfill will require regrading of the site, providing erosion controls, and the use of adequate materials to assure the long-term integrity of the landfill. The PRPs have also stated that the PCB contaminated soils are not considered a TSCA waste since the average concentration of PCBs is under 50 PPM. Although CERCLA is exempt from other environmental laws, one measure used by EPA in determining whether a remedial alternative at Superfund sites adequately meets the CERCLA test of protecting public health, welfare, and the environment is whether the alternative attains the substantive provisions of other applicable federal public health and environmental standards. The applicable TSCA requirements

PRP COMMENTS	RESPONSE
4. Recommended Alternative (continued)	
	are listed under 40 CFR 761. TSCA regulates PCB wastes over 50 PPM. The contaminated soils represent a mixture of wastes from bulk dumping activities and leaking drums. These soils cannot be further composited to obtain a PCB value under 50 PPM. Since levels of contamination were not uniformly distributed such that the pile could be segregated, the entire stockpile would be considered a TSCA waste. EPA draft policy 6-PCB-9 addresses the extent of cleanup and does not allow for the compositing of samples to obtain levels under 50 PPM. The draft policy states that improperly disposed of PCBs shall be cleaned up to background levels unless these levels are not practicably attainable using normal cleanup methods. As stated, EPA has determined that disposing of the PCB and phenol contaminated soils in a RCRA/TSCA landfill is necessary to meet the CERCLA test of being adequately protective of public health, welfare, and the environment. Regarding the possible biodegradation of PCBs, a pilot study was conducted in 1982 by O.H. Materials using commercially available microbes and proved to be unsuccessful as stated on page 2-4 of the RI/FS.

PRP COMMENTS	RESPONSE
5. Impacts from Construction Activities The activity of creating a RCRA/TSCA landfill will entail risks to workers by construction activity and the surrounding population by fugitive dust. The RI/FS does not address these risks. These risks, coupled with the destruction of the microorganism habitat, far outweigh any perceived benefit in moving the piles twice and creating a RCRA/TSCA landfill.	Regarding the construction of a RCRA/TSCA landfill, the RI/FS considered the creation of potential adverse affects. It is unlikely that 100 percent efficiency of dust control can be attained with any technology. However, to reduce the risks to workers during remediation, an effective health and safety program would be implemented. In addition, to minimize worker injury and ensure worker safety with the use of heavy equipment, EPA would require that adequate worker safety measures be implemented. Construction of a secure RCRA/TSCA landfill onsite would not present any adverse effects to the microorganism habitat in the nearby swamp ecosystems. Therefore, the implementation of the recommended alternative SC-5 is not expected to result in adverse impacts which cannot be readily controlled, but will result in mitigating the risks posed by the PCB and phenol piles.

TABLE 1. SUMMARY OF SAMPLING ACTIVITIES OF PCB-CONTAMINATED SOILS AT PICILLO SITE

Sampling Date	No. of Samples	Average Concentration, $\bar{x}$	Standard Deviation, S	Maximum Concentration	No. of Samples >50 ppm	% of Samples >50 ppm	Comments
8/26/80	1	700	----	700	1	100	Composite NE trench[a]
7/13/81	3	54.5	48	91.3	2	67	Tall mound - Phase I[b]
	3	70.2	45	122	1	33	Shallow mound - Phase III[b]
7/25/81	4	79.3	30	124	4	100	Soil Borings[c]
6/25/82	5	41.1	35	100	1	20	Four quadrants plus composite[d]
7/19/83	5	7.4	3.9	13.2	0	0	Not considered representative according to John Leo RI DEM[e]
2/09/84	92	36.8	31.0	180	15	16	EPA PCB Results[g]
2/09/84	9	33.7	20.2	74.5	1	11	RI DEM Results for 9 composited samples[f]

[a]RI DEM sampling reported in Riggs (10/80).
[b]Franklin Research Institute sampling reported in Pytlewski (8/81).
[c]US EPA Region I sampling reported in Ecology and Environment Inc. (11/81).
[d]O.H. Materials sampling reported in Flatham (1/83).
[e]RI DEM sampling reported in Muller (7/83).
[f]RI DEM sampling and analysis reported in Hartley (3/84).
[g]US EPA Region I analysis reported in Lattaille (3/84).

TABLE 2. VOLATILE ORGANIC COMPOUND CONTENT IN PCB PILE AT PICILLO SITE[a]

Parameter	Average[b] concentration, ppb	Standard[b] deviation, ppb	Maximum concentration, ppb	No. of samples showing greater than detection limit	Percent samples showing greater than detection limit
1,1-dichloroethylene	440	---	440	1	11
1,2-dichloroethane	7,570	7,530	18,500	7	78
1,1,1-trichloroethane	4,550	4,220	8,350	7	78
trichloroethylene	4,000	5,040	13,220	8	89
1,1,2-trichloroethane	890	440	1,500	5	56
tetrachloroethylene	3,980	2,500	6,560	8	89
chlorobenzene	930	370	1,510	7	78
benzene	3,770	1,270	5,490	4	44
toluene	46,250	41,860	132,000	9	100
ethylbenzene	8,030	3,630	11,000	9	100
xylene	49,300	21,400	80,500	9	100

[a]Based on RI DEM, results reported in Hartley 1984 for sampling conducted 2/9/84 for nine selected samples of 92 collected.

[b]Average and standard deviation of samples greater than detection limit.

TABLE 3.. ORGANIC POLLUTANTS DETECTED AT THE PICILLO SITE

Category	Compound	Maximum Ground Water Concentration[a] 3/83	Maximum Surface Water Concentration[b]	Surface Water Sampling Date[b]
Volatile	Benzene	250	970	4/79
Aromatic	Toluene	29,800	8,300	3/81
Hydrocarbons	Ethylbenzene	1,190	1,100	3/81
	Xylenes	4,510	56,000	2/79
Chlorinated	Chlorobenzene	140	121	6/82
Volatile	1,2-Dichloroethane	160	ND	----
Organics	1,1,1-Trichloroethane	23,000	4,600	3/81
	1,1-Dichloroethane	710	500	3/81
	1,1,2-Trichloroethane	260	ND	----
	1,1,2,2-Tetrachloroethane	10	ND	----
	Chloroethane	290	1,700	4/80
	Chloroform	2,100	4,200	7/81
	1,1-Dichloroethylene	280	1,408	6/82
	Trans-1,2-Dichloroethylene	480	370	12/80
	Methylene Chloride	4,840	6,000	12/80
	Fluorotrichloromethane	1,930	ND	----
	Tetrachloroethylene	420	810	7/81
	Trichloroethylene	5,860	1,600	4/80
	Carbon Tetrachloride	ND	2,200	4/79

(continued)

TABLE 3 (continued)

Category	Compound	Maximum Ground Water Concentration[a] 3/83	Maximum Surface Water Concentration[b]	Surface Water Sampling Date[b]
Ketones	Acetone	9,080	21,100	3/81
	Methyl Ethyl Ketone	2,920	1,700	3/81
	Methyl Isobutyl Ketone	890	3	6/81
Acid Extractable Organics	Phenol	1,800	NS	----
	2-Nitrophenol	94	NS	----
	2,4-Dimethyl Phenol	680	NS	----
Base/Neutral Extractable Organics	Bis(2-Chloroethyl)Ether	53	NS	----
	1,2-Dichlorobenzene	94	NS	----
	Nitrobenzene	170	NS	----
	Isophorone	260	NS	----
	Naphthalene	11	NS	----
	Bis(2-Ethylhexyl)Phthalate	15	NS	----
Others	Tetrahydrofuran	1720	101	6/82
	PCB-1242[c]	1.57	NS	----

All values in micrograms per liter (ppb).
ND = Not detected.
NS = Not sampled.
[a]Reference: Tighe & Bond, 8/83.
[b]Reference: E & E, 3/83.
[c]PCBs detected in well BR-W2.

TABLE 4a. UNNAMED SWAMP AIR EMISSION MODELING RESULTS

Pollutant Category	Compound	Maximum Contaminant Level in surface water (µg/l)	Emission Rate (lb/hr)	Predicted Downwind Ambient Concentration (µg/m^3)
Aromatic Hydrocarbons	Xylenes[a]	56,000	7.64	359
	Benzene[a]	970	0.15	7.2
	Toluene[a]	6,000	0.88	41.4
	Ethyl Benzene	930	0.13	6.1
Chlorinated Volatile Organics	Carbon Tetrachloride	2,200	0.25	11.5
	Chlorobenzene	121	0.02	0.9
	1,1,1-trichloroethane[a]	4,400	0.54	24.9
	1,1-dichloroethane	500	0.07	3.3
	Chloroethane	1,700	0.30	---
	Chloroform[a]	4,200	0.54	25.3
	1,1-dichloroethylene	1,408	0.20	9.1
	Methylene chloride[a]	7,700	1.16	54.3
	Tetrachloroethylene	810	0.09	4.1
	Trichloroethylene[a]	1,600	0.20	9.3
Ketones	Methyl ethyl ketone[a]	1,600	0.66	2.9

[a]Indicator compounds.

Data averaging times correspond to the length of the monitoring periods, which are outlined in Volume III, Appendix D of the Endangerment Assessment and Feasibility Study.

TABLE 4b. DETECTED AND PREDICTED OFFSITE CONCENTRATIONS OF VOLATILE-ORGANICS

Compound	GCA offsite[a] monitoring 1982		GCA modeling[b] 1984		Odor threshold[e]
	ug/m3[c]	ppb[d]	ug/m3[d]	ppb[c]	ppb
Benzene	ND-19	ND-5.9	7.2	2.2	160
Carbon tetrachloride	ND	-	11.5	1.8	approx. 9,000
Chlorobenzene	ND	-	0.9	0.2	approx. 90
1,1,1-Trichloroethane	ND	-	24.9	4.5	100,000
Dichloroethanes	ND	-	3.3	0.8	120
Chloroform	ND-13	ND-2.6	25.3	5.1	100,000
Dichloroethylenes	ND	-	9.1	2.3	500
Ethylbenzene	14-140	3.5 -34.5	6.1	1.4	90
Methylene chloride	ND-45	ND-12.6	54.3	15.4	approx. 10,000
Tetrachloroethylene	ND-57	ND-7.7	4.1	0.6	approx. 5,000
Toluene	ND-140	ND-36.4	41.4	10.8	100
Trichloroethylene	ND	-	9.3	1.7	approx. 10,000
Xylenes	ND-540	ND-124.2	358.5	81.3	approx. 3 (o-xylene)
Methyl ethyl ketone	ND-56	ND-19.0	2.9	1.0	approx. 10,000

[a]Source: GCA, 1982.

[b]Downwind concentrates at 3,000 feet from source, worst case. See Appendix D for modeling details.

[c]Reported or calculated units.

[d]Conversion at 760 mm Hg, 0°C.

[e]Lowest threshold reported, Source: Verschueren, 1983.

[f]ND = Not detected.

TABLE 5. RECENT DATA FOR CONTAMINANT LEVELS IN SOILS AND LEACHATES AT THE PICILLO SITE

Category	Compound	Average concentration, ppb	Standard deviation, ppb	Maximum concentration, ppb	No. of samples showing greater than detection limit	Source of Samples
Aromatic Hydrocarbons	Xylenes	49,300	21,400	80,500	9	PCB Pile[a]
	Benzene	3,770	1,270	5,490	4	PCB Pile[a]
	Toluene	46,250	41,860	132,000	9	PCB Pile[a]
	Ethyl benzene	8,030	3,630	11,000	9	PCB Pile[a]
Chlorinated Volatile Organics	1,1-dichloroethylene	440	—	440	1	PCB Pile Leachate[c]
	1,2-dichloroethane	7,570	7,530	18,500	7	PCB Pile[a]
	Chloroform	3	—	3	1	PCB Pile Leachate[c]
	Methylene chloride	15	—	15	1	PCB Pile Leachate[c]
	Trichloroethylene	4,000	5,040	13,220	8	PCB Pile[a]
	1,1,1-trichloroethane	4,550	4,220	8,350	7	PCB Pile[a]
	1,1,2-trichloroethane	890	440	1,500	5	PCB Pile[a]
	Tetrachloroethylene	3,980	2,500	6,560	8	PCB Pile[a]
	Chlorobenzene	930	370	1,510	7	PCB Pile[a]
Acid Extractable Organics	Phenol (total extractables)	57,000	13,400	72,000	4	Phenol Pile[b]
	4-chloro-3-methly phenol	1,980	330	2,300	4	Phenol Pile[b]
	2,4-dimethyl phenol	4,680	3,170	9,100	4	Phenol Pile[b]
Extractable Pesticides: PCBs	Chlordane	30	—	30	1	Phenol Pile Leachate[c]
	PCB-Aroclor 1248	36,800	31,000	180,000	90	PCB Pile[d]

[a]Based on RI DEM results reported in Hartley (3/84) for sampling conducted 02/09/84.

[b]Based on RI DEM results reported in Perrotti (7/83) for sampling conducted 06/17/83.

[c]Based on RI DEM results reported in Perrotti (8/83) for sampling conducted 05/03/83.

[d]Based on EPA results reported in Lattaille (3/84) for sampling conducted 02/09/84 by RI DEM.

TABLE 6. CONCENTRATIONS OF ORGANICS IN THE UNNAMED SWAMP AND WHITFORD POND

Indicator Compound	Sampling Date	Sampling Location: Unnamed Swamp Center (PF02a)	Sampling Location: Unnamed Swamp Upstream of Dam (PF03)	Sampling Location: Whitford Pond Inlet (IWP)
Xylenes	05/07/80	1,700	ND	NS
	12/09/80	500	ND	NS
	03/25/81	320	ND	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	1.7
	02/09/84	32	7	NS
Toluene	05/07/80	1,400	ND	NS
	12/09/80	2,400	ND	NS
	03/25/81	1,800	ND	NS
	06/03/82	224	NS	ND
	02/01/83	2	NS	1.6
	02/09/84	10	1	NS
Benzene	05/07/80	510	ND	NS
	12/09/80	200	ND	NS
	03/25/81	240	ND	NS
	06/03/82	151	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	66	ND	NS
Chloroform	05/07/80	ND	ND	NS
	12/09/80	ND	ND	NS
	03/25/81	440	3.3	NS
	06/03/82	151	NS	7.4
	02/01/83	ND	NS	2.7
	02/09/84	5	9	NS
Methylene Chloride	05/07/80	3,700	ND	NS
	12/09/80	1,700	ND	NS
	03/25/81	7,700	ND	NS
	06/03/82	70	NS	ND
	02/01/83	ND	NS	2
	02/09/84	14	3	NS

(continued)

TABLE 6 (continued)

Indicator Compound	Sampling Date	Sampling Location: Unnamed Swamp, Center (PF02a)	Sampling Location: Unnamed Swamp, Upstream of Dam (PF03)	Sampling Location: Whitford Pond, Inlet (IWP)
1,1,1-trichloroethane	05/07/80	1,600	ND	NS
	12/09/80	830	ND	NS
	03/25/81	870	20	NS
	06/03/82	276	NS	2.6
	02/01/83	ND	NS	3.8
	02/09/84	962	15	NS
Trichloroethylene	05/07/80	840	ND	NS
	12/09/80	250	ND	NS
	03/25/81	90	1	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	310	ND	NS
"Total Volatiles"	05/07/80	11,700	ND	NS
	12/09/80	7,390	ND	NS
	03/25/81	12,452	102	NS
	06/03/82	2,634	NS	10
	02/01/83	2	NS	11.8
	02/09/84	3,030	54	NS

NS = Not sampled.
ND = Not detected.
All concentrations in ppb.

Source: E&E, 1983.

TABLE 6. CONCENTRATIONS OF ORGANICS IN THE UNNAMED SWAMP AND WHITFORD POND

Indicator Compound	Sampling Date	Sampling Location: Unnamed Swamp: Center (PF02a)	Sampling Location: Unnamed Swamp: Upstream of Dam (PF03)	Sampling Location: Whitford Pond: Inlet (IWP)
Xylenes	05/07/80	1,700	ND	NS
	12/09/80	500	ND	NS
	03/25/81	320	ND	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	1.7
	02/09/84	32	7	NS
Toluene	05/07/80	1,400	ND	NS
	12/09/80	2,400	ND	NS
	03/25/81	1,800	ND	NS
	06/03/82	224	NS	ND
	02/01/83	2	NS	1.6
	02/09/84	10	1	NS
Benzene	05/07/80	510	ND	NS
	12/09/80	200	ND	NS
	03/25/81	240	ND	NS
	06/03/82	151	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	66	ND	NS
Chloroform	05/07/80	ND	ND	NS
	12/09/80	ND	ND	NS
	03/25/81	440	3.3	NS
	06/03/82	151	NS	7.4
	02/01/83	ND	NS	2.7
	02/09/84	5	9	NS
Methylene Chloride	05/07/80	3,700	ND	NS
	12/09/80	1,700	ND	NS
	03/25/81	7,700	ND	NS
	06/03/82	70	NS	ND
	02/01/83	ND	NS	2
	02/09/84	14	3	NS

(continued)

TABLE 6 (continued)

Indicator Compound	Sampling Date	Sampling Location: Unnamed Swamp, Center (PF02a)	Sampling Location: Unnamed Swamp, Upstream of Dam (PF03)	Sampling Location: Whitford Pond, Inlet (IWP)
1,1,1-trichloroethane	05/07/80	1,600	ND	NS
	12/09/80	830	ND	NS
	03/25/81	870	20	NS
	06/03/82	276	NS	2.6
	02/01/83	ND	NS	3.8
	02/09/84	962	15	NS
Trichloroethylene	05/07/80	840	ND	NS
	12/09/80	250	ND	NS
	03/25/81	90	1	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	310	ND	NS
"Total Volatiles"	05/07/80	11,700	ND	NS
	12/09/80	7,390	ND	NS
	03/25/81	12,452	102	NS
	06/03/82	2,634	NS	10
	02/01/83	2	NS	11.8
	02/09/84	3,030	54	NS

NS = Not sampled.
ND = Not detected.
All concentrations in ppb.

Source: E&E, 1983.

TABLE 7. SUMMARY OF STANDARDS AND CRITERIA FOR SUBSTANCES DISCUSSED IN THE TOXICITY PROFILE

Compound	Human 1 x 10^{-6} cancer risk[a]		Ambient water quality criteria[b]		Acute toxicity level-aquatic organisms[c]	OSHA standard TLV[d]
	Fish and water	Fish only	Fish and water	Fish only		
Benzene	0.66 ppb	40.0 ppb	0.66 ppb[e]	40 ppb[e]	5.3 ppm	10 ppm
Toluene	--	--	14.3 ppm	424 ppm	17.5 ppm	100 ppm
Xylenes	--	--	------		>10 ppm[g]	100 ppm
1,1,1-Trichloroethane	--	--	18.4 ppm	1030 ppm	18 ppm	350 ppm
Chloroform	0.19 ppb	15.7 ppb	0.19 ppb[e]	15.7 ppb[e]	28.9 ppm (acute) 1.24 ppm (chronic)	25 ppm
Trichloroethylene	2.7 ppb	80.7 ppb	2.7 ppb[e]	80.7 ppb[e]	45 ppm	100 ppm
Methylene chloride	0.19 ppb	15.7 ppb	0.19 ppb[e]	15.7 ppb[e]	11 ppm	200 ppm
Methyl ethyl ketone	--	--	------		>100 ppm[g]	200 ppm
Methyl isobutyl ketone	--	--	------		>100 ppm[g]	100 ppm
Acetone	--	--	------		>10 ppm[g]	1000 ppm
Phenol	--	--	300 ppb[f]		10.20 ppm (acute) 2.56 ppm (chronic)	5 ppm
2,4-Dimethylphenol	--	--	400 ppb[f]		2.12 ppm	----

(continued)

TABLE 7. (continued)

Compound	Human 1 x 10^{-6} cancer risk[a]		Ambient water quality criteria[b]		Acute toxicity level-aquatic organisms[c]	OSHA standard TLV[d]
	Fish and water	Fish only	Fish and water	Fish only		
2-Nitrophenol	--	--	------		230 ppb	----
Cresol	--	--	------		--	5 ppm
Isophorone	--	--	5.2 ppm	520 ppm	117 ppm	5 ppm
PCBs	0.79 ppt	0.079 ppt	0.79 ppt[e]	0.079 ptt[e]	2 ppb	1 ppm

[a]Concentration corresponding to human one in one million increased cancer risk from 1980 Ambient Water Quality Criteria. -- signifies no carcinogenic assessment based on currently available data. Source: Federal Register, November 28, 1980.

[b]Source: Federal Register, November 25, 1980. Criteria are based on systemic toxic effects unless otherwise noted. ------ indicates nonpriority pollutant, therefore no criteria formulated.

[c]Source: Federal Register, November 28, 1980, unless otherwise noted.

[d]Source: Sax, 1981. ---- indicates no TLV.

[e]Ambient Water Quality Criteria based on 1 x 10^{-6} carcinogenic risk level. For 1 x 10^{-5} level, multiply by 10; for 1 x 10^{-7} level, divide by 10.

[f]Organoleptic criteria: levels at which taste or odor are imparted to water and/or fish. There is no human health significance given to this level.

[g]Source: Verscheuren, 1983.

TABLE 8. COMPARISON OF SWAMP CONTAMINANT LEVELS TO TOXICITY LEVELS

Compound	Highest swamp concentration[a] (ppm)	Current swamp concentration[a] (ppm)	Lowest acute toxicity[b] (ppm)	Lowest chronic toxicity[b] (ppm)
Acetone	21	0.066	5.5	
Benzene	0.97		5.3	
Chloroform	4.2		28.9	1.2
Methyl ethyl ketone	1.7		70	
Methyl isobutyl ketone	0.003		460	
Methylene chloride	6		11	
1,1,1-Trichloroethane	1.6	0.96	18	
Trichloroethylene	0.84	0.31	45	
Toluene	6	0.01	17.5	
Xylenes	56	0.03	1.3	

[a]Data from Tables 4-5, 4-6.

[b]Data from EPA Water Quality documents, Federal Register, November 28, 1980, and a search of AQUIRE in July 1984, EPA's computerized data base on toxic substances.

Reproduced from
best available copy.

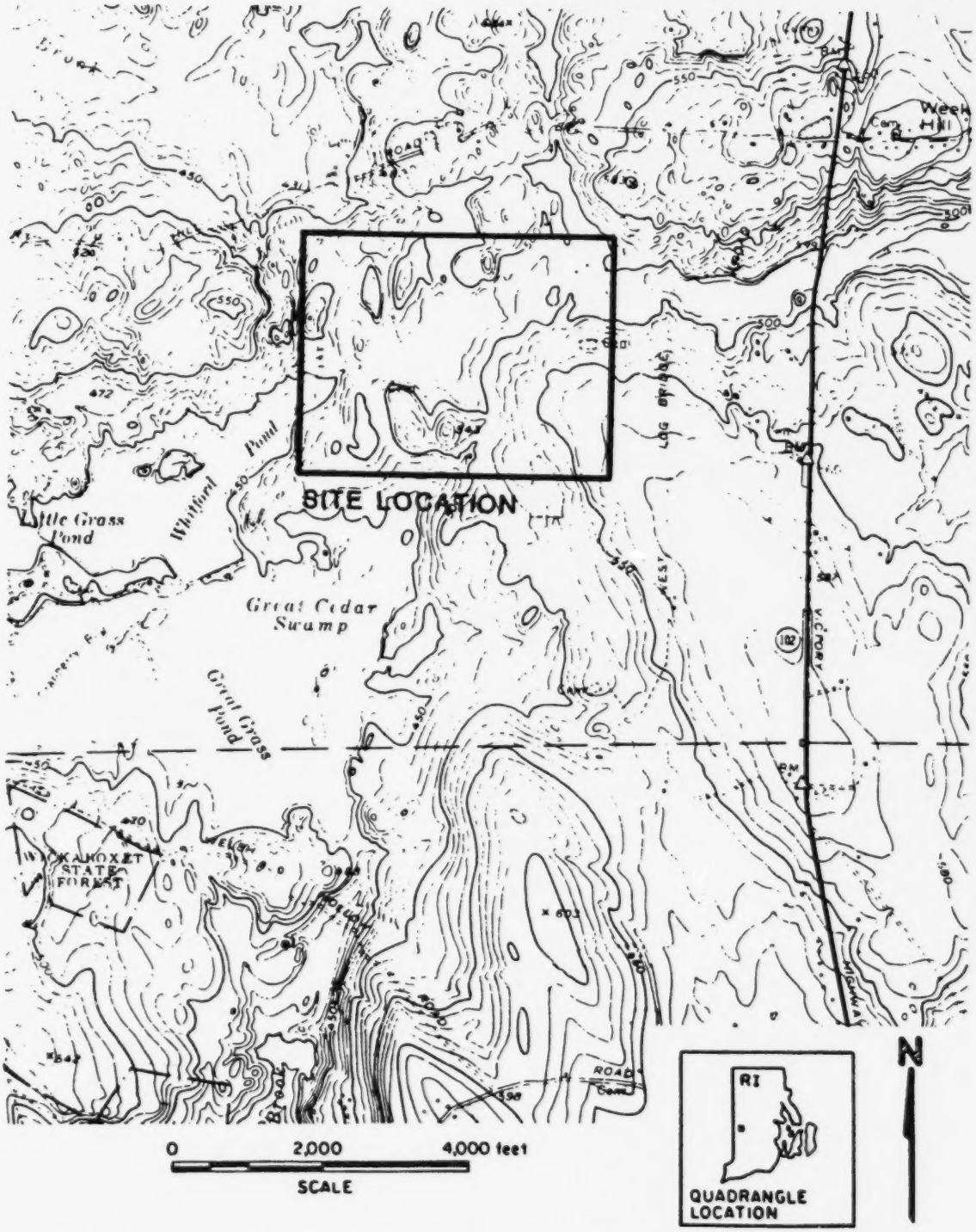

Figure 1. Locus map of the Picillo Farm Site. (Adapted from E & E, 1981).

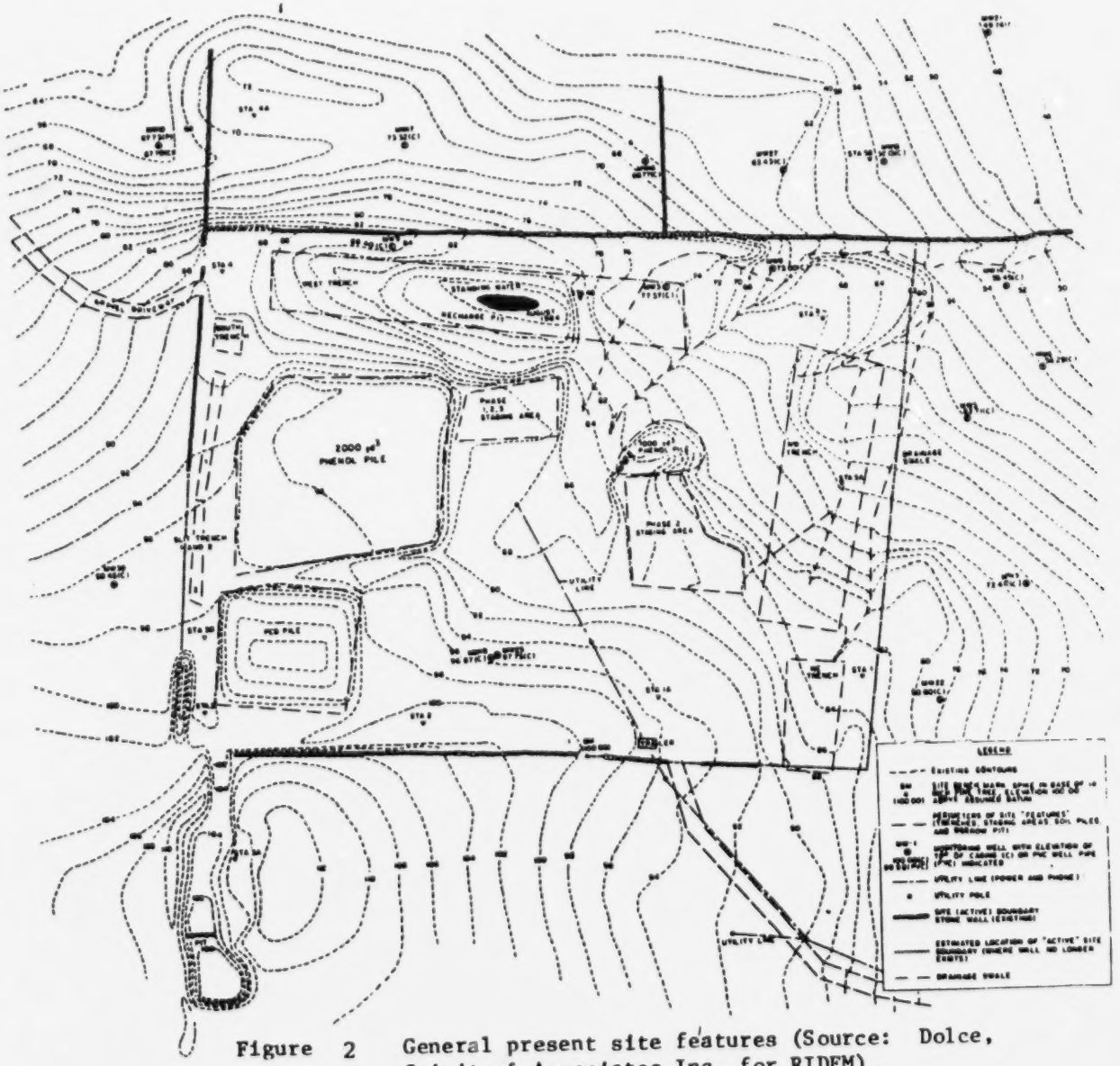

Figure 2 General present site features (Source: Dolce, Spirito & Associates Inc. for RIDEM).

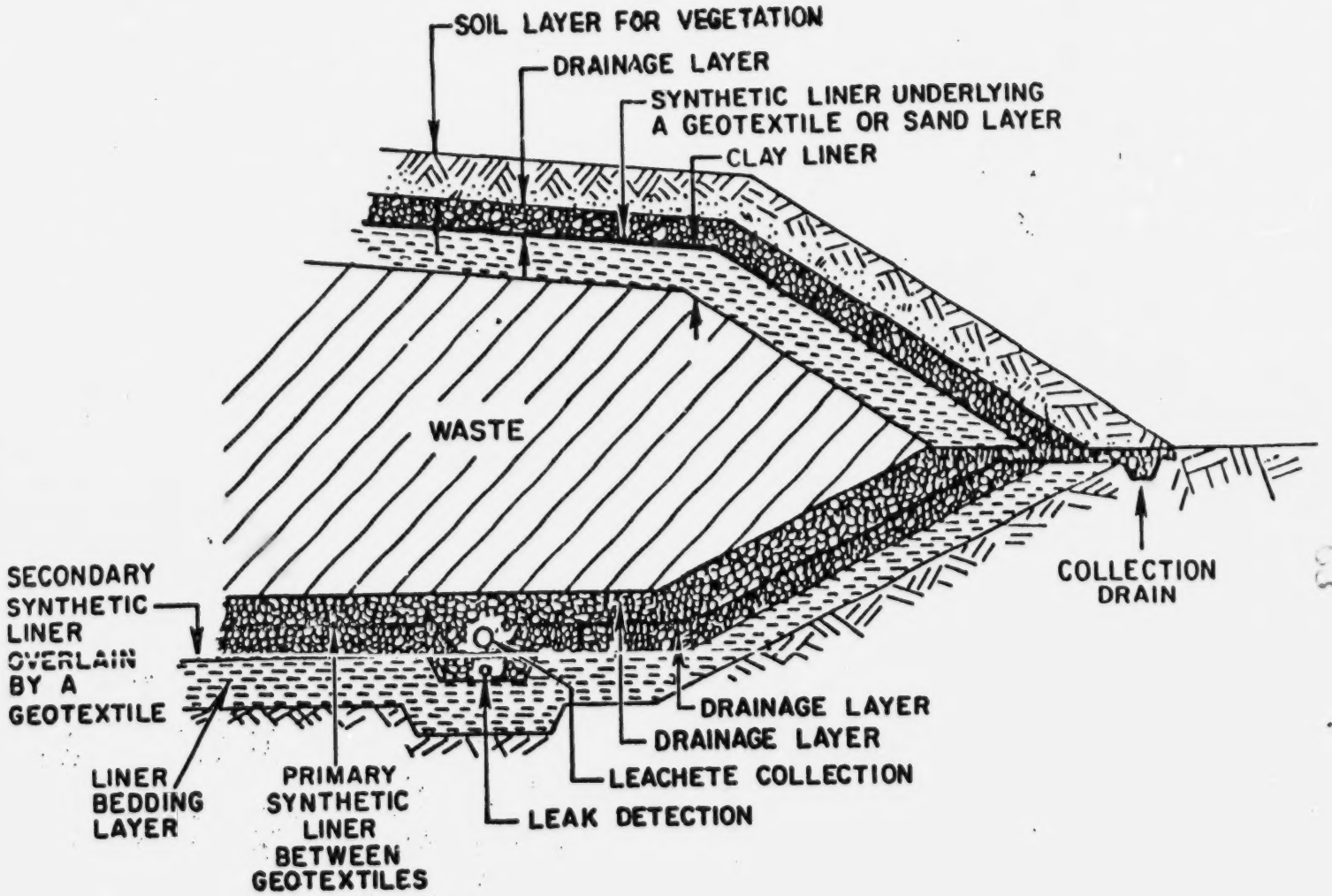

Figure 3 Proposed RCRA designed landfill.

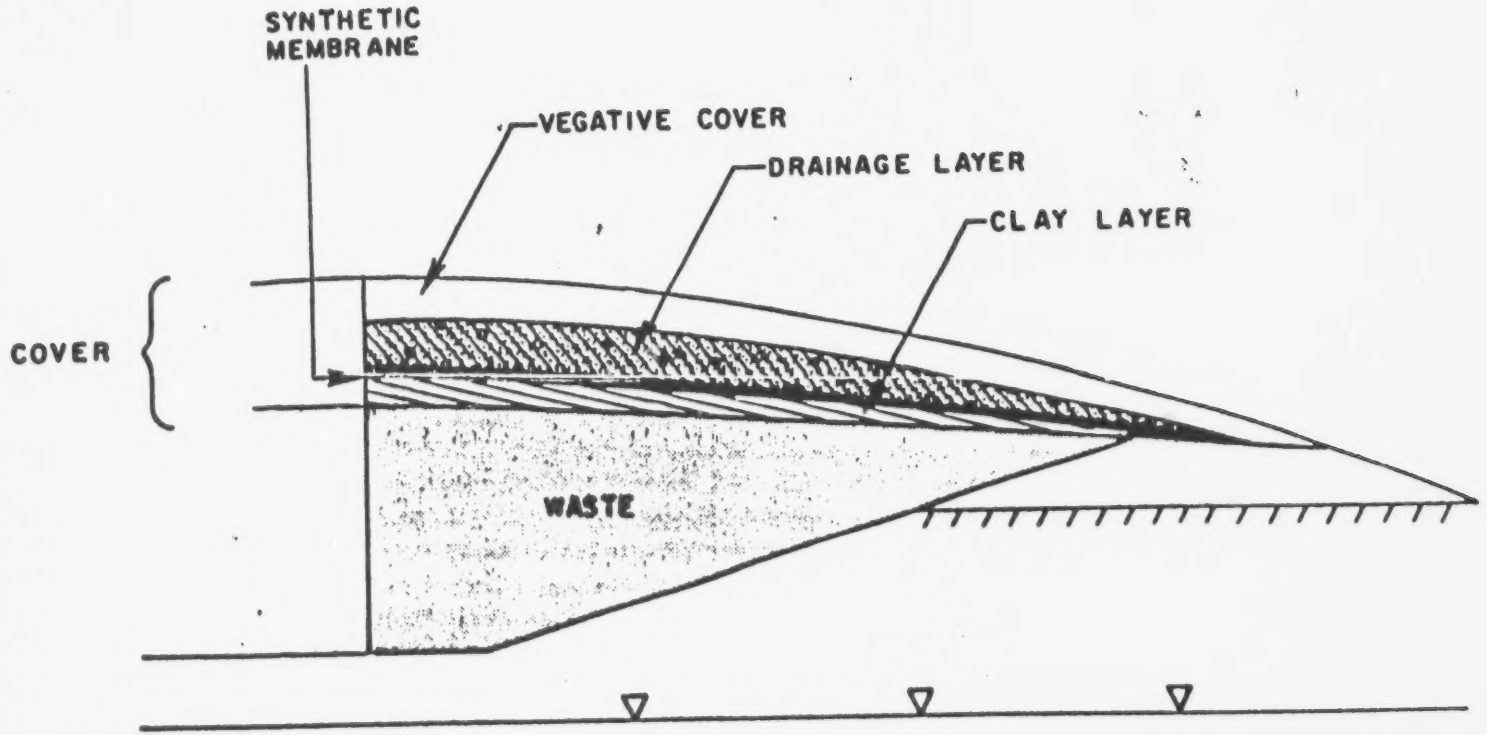

Figure 4 Proposed cap design.

Attachment 1

PICILLO COST SHEET FOR SOURCE CONTROL ALTERNATIVES

Alternative SC-2: Disposal of PCB and phenol contaminated soils offsite in a RCRA/TSCA Landfill

* Direct Capital Costs	
- Offsite disposal (6500 yd^3)	$1,478,300
- Site closure	222,300
* Indirect Capital Costs (Engineering 9%, Legal and license/ permits 5%, Contingency 25%)	663,300
* Operations and Maintenance, 30 years (present worth)	145,300
	$2,509,200

Alternative SC-3: Disposal of PCB Contaminated Soils Offsite in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils Onsite in RCRA Landfill

* Direct Capital Costs	
- Onsite RCRA landfill of phenol soils	$212,100
- Offsite disposal of PCB soils (3500 yd^3)	844,500
- Site closure	227,200
* Indirect Capital Costs	500,800
* Operations and Maintenance	191,400
	$1,976,000

Alternative SC-4: Disposal of PCB Contaminated Soils Offsite in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill

* Direct Capital Costs	
- Onsite cap-only landfill of phenol soils (3000 yd^3)	$ 113,300
- Offsite disposal of PCB soils (3500 yd^3)	844,500
- Site closure	227,200
* Indirect Capital Costs	462,300
* Operations and Maintenance	191,400
	$1,838,700

Alternative SC-5: Disposal of PCB Contaminated Soils Onsite in a RCRA/TSCA Landfill

* Direct Capital Costs	
- Onsite RCRA Landdfill (6500 yd^3)	$378,200
- Site closure	227,200
* Indirect Capital Costs	236,200
* Operations and Maintenance	191,400
	$1,033,000

Alternative SC-6: Disposal of PCB Contaminated Soils Onsite in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill

* Direct Capital Costs	
- Onsite RCRA Landfill for PCB soils (3500 yd^3)	$250,800
- Onsite cap-only landfill for phenol soils (3000 yd^3)	113,300
- Site closure	227,200
* Indirect Capital Costs	230,600
* Operations and Maintenance	191,400
	$1,013,300